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Resource Sharing via Social Networks

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***Abstract*—** Social networks enables people to communicate and interact with each other. With the increasing usage of social network platform, we are going to develop a mechanism for allocating resources effectively within a social network . It will be easier for users to share their own services, resources and data via social networks. In this paper, we present a social networking site leveraging cloud infrastructure. Users in this site can share resources to their peers through cloud. This work illustrate how social networks and cloud computing can be effectively utilized for allocating resources in the presence of user sharing preferences. We investigate, via simulation, how resources can be effectively allocated within a social community. There are several design decisions that have to be addressed; the interaction of users in the platform, mechanism to exchange resources, the underlying infrastructure etc

Keywords- Social Cloud Computing, Social Networks, Cloud Computing, Resource Allocation.

I. INTRODUCTION

Social Cloud aims to provide mechanism for resource sharing. Social Cloud model allows users to fulfil need of an individual by availing underutilized resources of other users in Social network environment. Social Cloud is defined as a resources and service sharing framework utilizing relationships established between members of a Social network.

A Social Cloud (SC) is a platform for sharing resources within a social network. The main feature of a Social Cloud is that it enables sharing, not selling of resources. There are numerous existing social networking websites such as Orkut, Facebook and Google+. On these sites, one of the greatest concerns has been the security and privacy of personal data. That is to control the personal information that is being shared to other users and social applications. In Social Cloud, owners of the computing resources are willing to share their computing resources for their friends circle, and for a different economical model than in the conventional cloud computing.

The structure of a Social Network is essentially a dynamic virtual organization with trust relationships between friends. Based on this trust resources in a Social Cloud are shared. The resources include disk stored contents, memory space and services. The vision of SC is motivated by the need of individuals or groups to access resources they are not in possession of, but that could be made available by connected peers. . As a service SC can be applied in the healthcare field. It uses database that has enormous articles regarding life sciences which will automatically identify sentences and provides the relation between the diseases and treatments. Healthcare related information is mainly from published articles. Thus it will provide information related to the disease. The web search engine has long become the most important portal for ordinary people looking for useful information on the web. However, users might experience failure when search engines return irrelevant results that do not meet their real intentions. Personalized web search (PWS) is a general category of search techniques aiming at providing better search results, which are tailored for individual user needs. User information has to be collected and analysed to figure out the user intention behind the issued query. Thus social cloud helps in personalized websearch.

When the user downloads the resource which someone has shared then a mail alert will be sent to the owner mail informing that particular user has downloaded the resource. Social Cloud can be viewed as a cooperative resource sharing system which stands on notions: communication, cooperation and coordination. Users involved in a social relationship communicate each other through a wide area network. A set of users of a social network bring about resource sharing through cooperation. Coordination system assists in cooperation among users.

II. ABOUT THE SYSTEM

Presently, many social applications make use of cloud computing technologies. Box.net is one such cloud storage provider. They have created a variety of apps aimed at sharing their stored data across numerous social networks like Twitter, LinkedIn, Facebook, etc. But the disadvantages of the existing system are lack of security & privacy, large amount of Data transmission across social network is not possible and is uneconomical.

Here, we propose a system (Social Compute Cloud) by integrating the advantages of cloud computing and social networks. Social Cloud can be viewed as a cooperative resource sharing system which stands on notions like communication, cooperation and coordination. The advantage of this system is that resource sharing is possible and are allocated to users based on preference. It is economical and

facilitates sending of large amount of data across social networks. It provides more security and privacy (2 factor base authentication is provided).

Here we used some basic concepts from the following papers.

1) A Survey of Cloud Computing and Social Networks in 2013.

This paper explains the concept of Cloud computing which shifts the computing resources to a third party, eliminating the need to purchase, configure and maintain those resources. As a result of which operational costs in software, hardware and human effort is lowered and many companies are considering the use of cloud services. This paper focuses on the current issues in cloud computing and social networks and how these technologies are being used together.

2) On Sharing Infrastructure Resources using Online Social Networks in 2015.

This paper introduces concepts for Online Social Network (OSN) and Cloud computing. OSNs are digital relationship between users that allows them to share and access information on basis of their social associations. It describes the architecture and design of an Online Social Network; a combination of Cloud Computing, Volunteer Computing and Social networking. This system uses a simple numerical preference matching interface that enables users to define their preference for a friend, as both an outsourcer and a worker. The higher preference value gives greater preference for their friend. A value of 0 or null indicates no preference and a negative value indicates unwillingness to interact with that friend. When preferences are assigned they are stored in the application database and are used to generate the overall preference model for allocation involving the user. An Online Social Compute Cloud is intended to empower access to flexible figure abilities given through a cloud fabric built over resources which is provided by socially connected users. An OSC is provides virtualized resources that secure access to contributed resources which include CPU time, memory and disk/storage of user through which they are able to execute programs and applications.

3) A Survey of Mobile Cloud Computing: Architecture, Applications, and Approaches.

This paper gives a survey of MCC which integrates the cloud computing into the mobile environment and overcomes obstacles related to the performance (e.g., battery life,storage, and bandwidth), environment (e.g., heterogeneity, scalability, and availability), and security (e.g., reliability and privacy) discussed in mobile computing. It discusses the advantages of cloud computing like Improving data storage capacity and processing power, Improving reliability,dynamic on-demand provisioning of resources on a fine-grained, self-service basis etc.

4) Social Based Volunteer Computing For Sharing Cloud Resources

The term volunteer computing was coined in 1996 by Luis Saramenta, who defines it as a form of distributed computing that allows “high-performance parallel computing networks to be formed easily, quickly, and inexpensively by enabling ordinary Internet users to share their computers idle processing power without needing expert help”. This paper focuses on a system (Social Compute Cloud) by integrating the advantages of cloud computing and social networks. A Social Compute Cloud is a platform for sharing infrastructure resources within a social network. Users can download and install a middleware, leverage their personal social network via a Facebook application, and provide resources to, or consume resources from, their friends through a Social Clearing House. The two advantages of this system *i.e* Users should not have to pay for the services offered by a Social Cloud platform and the resources should be allocated in users based on preference have been exploited to develop our proposed system.

5) BOINC:A System for Public-Resource Computing and Storage

This paper introduces a software system, BOINC (Berkeley Open Infrastructure for Network Computing) that makes it easy for scientists to create and operate public-resource computing projects. PC owners can participate in multiple BOINC projects, and can specify how their resources are allocated among these projects. The author describes the goals of BOINC, the design issues that they confronted, and solutions to those problems.

Certain goals of BOINC include :

- Reducing the barriers of entry to public resource computing by allowing research scientists with moderate computer skills to create and operate a large public-resource computing project with about a week of initial work and an hour per week of maintenance
- Sharing resources among autonomous projects,Rewarding participants by provide ”incentives” in order to attract and retain participants
- Supporting diverse application and providing flexible and scalable mechanism for distributing data, and its scheduling algorithms intelligently match requirements with resources.

These goals have been helpful in setting up our proposed system

III. CONCLUSION AND FUTURE ENHANCEMENT.

In this paper, we have presented a Social Compute Cloud: a platform that enables the sharing of infras- tructure resources between friends via digitally encoded social relationships. Using our implementation, users are able to execute programs on virtualized resources provided by their friends resource supply and demand do not fit to a batch allocation model. By applying methods to allocate resources in between Amazon EC2-like periodic allocations, we were able to quickly (in milliseconds) allocate resources temporarily, and then globally

optimize resource allocation at the next batch allocation period.

As future work, we will include additional ways for users to provide their preferences, as well as methods to detect them automatically from their social network. In terms of the Social Cloud platform we will further extend the sandbox to provide additional system calls and social access control so that users can give extended/restricted access rights to groups, for exam-le enabling command line access for family members. These extensions would increase the number of possible applications that could be executed within the Social Cloud and also further extend the social integration of the system. Finally, we aim to investigate how users use and interact with the resources of their friends, and move our implementation towards a production ready system.

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