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Efficient File Sharing Using SPOON

KEYWORDS: Central trust, Content based file sharing, Decentralized, Gossip, MANETs, Spoon.

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ABSTRACT *MANET's can be analyzed into three classes based on current peer to peer file sharing. They are flooding-based approach, advertisement-based approach, and social network. The first two classes have high superior and low quantifiability. They are mainly established for connected MANET's, in which point-to-point property among nodes are ensured. The third class adapts to the opportunist nature of disconnected MANET's but fails to contemplate the social interests of mobile nodes, which may be exploited to enlarge the file searching efficiency. To enhance the peer to peer file sharing, SPOON technique is suggested for disconnected MANET's. The system uses interest extraction algorithm to obtain an interests nodes from its files and nodes communicate to one another. It takes influence of node mobility by nominating permanent nodes, in which it has the most periodic contact with community members. The community members use two searching community and they are ambassadors for inter-community searching process, and community coordinators for intra-community searching. The above necessities are accomplished by gossip techniques which avoids the congestion between the nodes while sending.*

INTRODUCTION

A MANET (Mobile Ad-hoc Network) is an infrastructure less network and connected without wired in the network. It is self-determine in any direction and changes the connections from one system to other system. The MANETs are mobile and is a type of wireless ad-hoc network that has routable networking on top of the link layer. It contained peer to peer file sharing, self-healing, and self-forming the network.

In MANET, the files are shared efficiently and avoid congestion in peer to peer network. The p2p is sharing and distributing the digital media using network topology. The peer to peer file sharing method makes large networks in which nodes share files directly with each other using decentralized server. It can share the files for example audios, images, games, files, videos, graphics, text, and etc. MANET has some advantages that are mobility, cost effective, less time consuming, self- configurable, rapid deployable, and more robust than cellular system. In disconnected MANET, p2p file sharing systems is based on two methods flooding based and advertisement based. First flooding based method to improve the searching process and the advertisement based method each file holder regularly broadcasts an advertisement message in order to inform surrounding nodes about what files are to be shared. These two techniques have low capability and produce high overhead. It can be avoided using SPOON concept that is Social network based Peer to Peer content-based file sharing in mobile ad-hoc Network. The SPOON has three components community structure, interest extraction, and interest oriented file searching and retrieval.

The interest extraction only drive interest node from its files. In that node can drives a file vector for each of its files and they have keywords and weight. The community construction act as centralized manner by collecting interest node and contact frequencies. Interest oriented file searching is based on two ways intra-community and inter-community file searching. The intra-community is representing the home community and intercommunity is representing the foreign community. Intra-community only search the file within home community but inter-community search all the files both home and foreign community.

DESIGN OF SPOON

Architecture Diagram

System architecture is the conceptual model that defines the structure, and more views of a system. An architecture description is representing the productive file sharing and avoids the superior between the networks. First send the file from source, and the files collected by data-holder. These data-holders collect the files from the origin node and send to coordinator. In that data-holder node derives a file vector for each of its files from its metadata. These file vector denotes the keyword and weight and after retrieving the file vector, a node select the interest groups. Then the coordinator checks the index files from the data-holder. It is used to determine the importance of a vertex within the network and assign weight to each link based on the frequency for select the coordinator.

Intra community used to calculate query and community vector. Each files associated with a counter that representing the number of hops. The calculation is reduced by one after each forwarding. Ambassador checks all the files and used to bridge the coordinator in its home community and foreign community. Each node reports its utility values for foreign communities it has met to the coordinator in its home community.

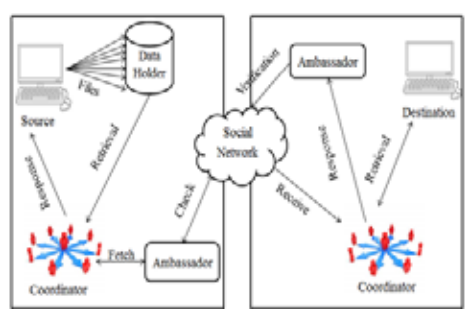

Figure 1: System Architecture

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Inter community eliminate unwanted or empty files. This community designs an application to the foreign community. It is similar to intra community file searching and uses multiple copies forwarding strategy. Network is used to send all the files to sink node. The nodes exchange two phases of interest vectors and community vectors in that network. It can remove the unwanted files or queries of the network.

Community Formation and Impor tance

Without loss of generality, we assume that node contents can be classified to different interest categories. It was found that users usually have a few file categories that they query for files frequently in a file sharing system. Exactly, for the superiority of users, 80 percent of their shared files drop into only 20 percent of overall file categories. Like other file sharing systems, we consider that a node's stored files can reflect its file interests. Thus, social network determines the targets of a node from its files.

File searching and Transfer

File searching in Spores is done in parallel. A peer sends search requests to its immediate neighbors who in turn forward the request to their immediate neighbors, etc., for a specified depth into the network. A search request specifies a file name, uniqueness code, type (file or folder), and search id. Either a file name or uniqueness code (or both) must be given. A search id is derived from the other components of the request plus the originating peer address. It is cached at peers receiving the request and used to prevent looping and redundant messages.

Figure shows peer A searching for a file that is stored in peer M. When a search request reaches M, the file name and/or uniqueness code are matched against files in M's shared space. The return arrows show the path of the search success messages that contain the address of M. In Spores it is useful to know how many copies of a file exist in the surrounding network to estimate the file saturation level. For this reason, every outgoing search message results in a reply indicating the number of copies found. In the example, peer A will receive three replies containing accumulated copy counts. A successful search results in the target peer's address being stored in the searching peer's connected list in the anticipation that it will later be downloaded from.

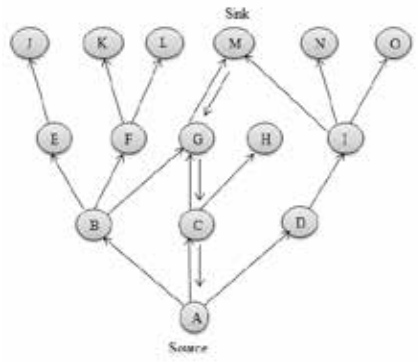

Figure 2: Parallel file search

Querying and Rendering the Data

The interest-oriented file searching scheme has two steps: intra- Community and inter-community searching. The interest node first searches files in its home community. The coordinator finds that the home community cannot satisfy a request and it launches the inter-community searching. To forward the request to an ambassador that will travel to the foreign community that matches the request's interest. A request is deleted when its TTL (Time To Live) expires. During the search, a node sends a message to another node using the interest-oriented routing algorithm (IRA), in which a message is always forwarded to the node that is likely to hold or to meet the queried keywords. The fetched file is routed along the search path or through IRA if the route expires.

CONCLUSIONS

A P2P network can be naturally organized into communities. It is dynamic and implicit structures consisting of peers that share interest attributes, and they are useful for efficient search or information dissemination operations within the network. A set of rules for peers to join a P2P network such that the network will always exhibit certain properties like small world behavior and power law distribution. In this paper, we proposed an undirected intra-community communication using two phases, push and pull, that are preceded by a Distributed Detection operation. The Distributed Detection algorithm involves gathering information on peer members of a community. We provided a dynamic scheme to determine a termination point for this algorithm.

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