Secure P2P File Direct in Dynamic Networks Using Computerization Scheme

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Abstract: The main aim of the research work is to develop the data replication algorithm based on data security and data processing and load balancing in order to take the minimum energy consumption and high data availability rate in the network. Mobile Ad hoc Networks (MANET) take collection of wireless mobile system dynamically forming new network without the use of any backend infrastructure or centralized administration. Based on Peer-to-Peer (P2P) network file destitute is mainly implementing in MANET. We introduce a new concept of Distributed File Replication algorithm which considers file dynamics network such as file addition and deletion in dynamic manner. The locations in the network are utilized as per the contents of the files to be shared. It provide security to decentralized p2p network by the implementation of key server and Intrusion Detection System (IDS) with new P2PHBA algorithm is used for the prediction modify path in the network by the scout is implementation to the efficient file sharing. The present replication protocol is drawbacks they are node storage and the allocation of resources in the replications. Future wireless communications are heading many all-Internet Protocol (all-IP) design and will rely on the Session Initiation Protocol (SIP) to manage services such as voice over IP (VoIP).

Index Terms: Content-based file sharing; interest extraction, interest oriented file sharing; peer-to-peer network, Mobile Ad hoc Network (MANET), file Replication, Query Delay.

1. INTRODUCTION

In a mobile ad hoc network (MANET) mobile hosts is communicate directly with different users using direct pair wireless links. P2P computing refers to technology that enables two or many peers to collaborate spontaneously in a network of equals using appropriate information and communication systems without the necessity for central coordination.[1] Content inserted into the network is stored and forwarded by cooperating nodes. Metadata and queries is inserted to represent essential attributes of content and to retrieve appropriate content from the network. Routing and caching perform in-network matching between metadata and queries. Content and metadata is security by a decentralized security framework to enable access control of content. Generally modifications of each layer require situation and resource aware cross-layer adaptation that is cognizant of features limitations, and dynamicity at each layer to maintain content accessibility with reasonable trade s between availability and bandwidth.[2] For instance the degree of redundancy for caching of content in a cluster of nodes should take into account the cluster density and stability

(lower layer), and at the same time the type and importance of the content (higher layer). MANET (Mobile ad hoc network) is dynamic networks populated by mobile stations. Stations in MANETs are usually laptops or mobile phones. These devices feature Bluetooth or Wi-Fi network interfaces and communicate in a decentralized manner. Devices in specific range can communicate in a point-to-point fashion. More and more people are interested in mobile ad hoc networks.

Client / Server   Peer-to-Peer

Fig. 2 Client/Server Model versus P2P Model

2. RELATED WORK

True identification of computer file types is a difficult modifications especially when dealing with suspicious goals. Computers are dealing with the huge number of file formats that are transmitting between the insider and outsider networks. The most usage and importance in the proper functionality of operating systems, firewalls, intrusion detection systems, anti-viruses, filters, analysis, computer forensics, and applications dealing with the file type classification [4] The new model of file type detection is based on the file contents. McDaniel and Heydari published the first paper on content-based file type detection [5, 6]. In mobile locations data is distributed across the network majorly in the form of pushing and pulling. Few of the possible method is based on push/pull mechanism have been surveyed in [7]. This includes data dissemination over limited bandwidth channels location-dependent data querying and advanced interfaces for mobile computers. The works in [8], [9], [10] show the several methods to address these research issues in mobile networks. Content-based routing and caching solutions for disruption tolerant networking (DTN) require resource provisioning to determine storing or forwarding of a particular piece of
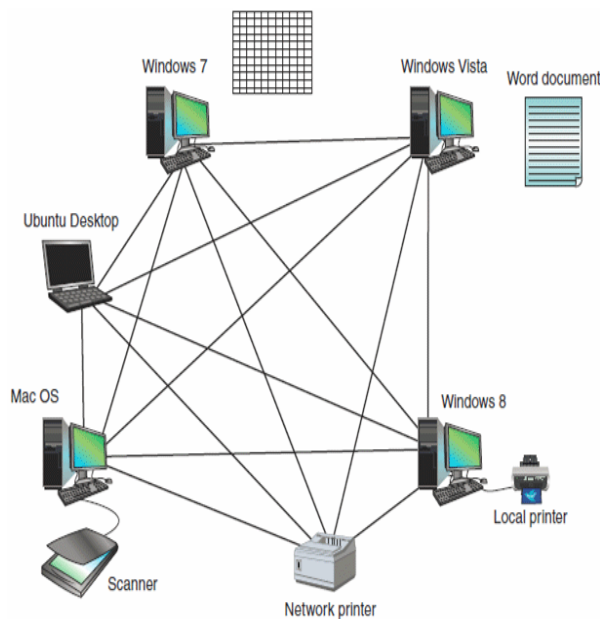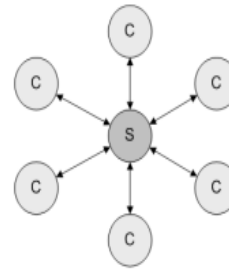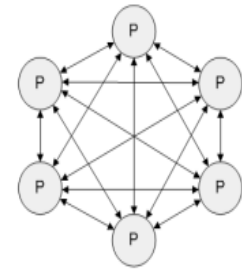

Fig.1 MANET peer-to-peer networks

Peer-to-peer (P2P) networks and Virtual Private Networks (VPNs) is two typical overlay networks in constructing large scale distributed applications over large networks. A definition of P2P networking is a set of schemas is direct exchange of services or data between computers. Implicit in this definition in fundamental principles that peers are equals. P2P systems emphasize sharing number of equals. A hybrid system uses many centralized or hierarchical locations. Peers can represent clients, servers, routers, or even networks [3].

content to maximize its availability. Quantifying the benefit and cost of such operations can be formulated as a utility maximization problem Our compositional optimization improves content-based utility by treating individual layers as modules, which makes it easier for further generalization to incorporate various local optimizers, such as deferent routing or caching schemes. The work proposes Conquer, a broker-based economic incentive model for mobile peer-to-peer networks. Although the work considers free riders to host data in mobile peer-to-peer networks, it assumes that all peers are trusted and they do not cheat. some strategies for handling selfish behavior have been proposed In the research field of distributed databases.

3. SYSTEM DESIGN

Architectural diagram deals with cluster of mobile nodes and architecture each cluster contains cluster head and each cluster head of every cluster is communicated with centralized node. Each member in the cluster is identical in some features. Each member in the cluster requests the cluster head for files and data. Cluster head includes all data about cluster members. Cluster head one group must communicate to cluster head of another cluster in order to get information of cluster member of that particular cluster.
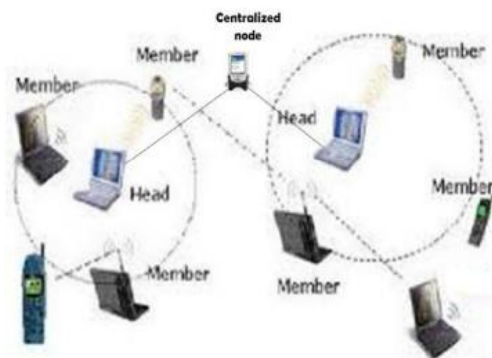

Fig.3 MANET Architecture

4. PROPOSED SOLUTION

The content-based file sharing in peer-to-peer networks using threshold. File sharing client access a number of people to use the same file or files by some combination of being able to read or view it. We propose a new sharing file replication protocol to minimize the average querying delay. Priority Based Dynamic Replication (PBDR) model is used adding and deleting the replica files based on the priority. The proposed algorithm well considers the caching overhead and change the cache node selection strategy to maximize the caching benefit on different MAC layers. In this model outperforms the symmetric method in traditional 802.11 based ad hoc networks due to removal of most of the processing overhead. In request analysis, the request is analyzed to see whether it is authorized or not. If it is authorized then process will be continued otherwise it is stop there. The sample files are collected from different sources to secure the sample files of a file type are not generated by one source.
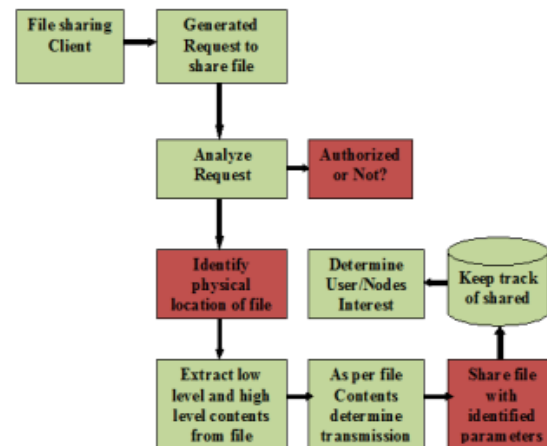

Fig.4 Content-Based File Sharing using Threshold

A. Replica Allocation:

The SCF-tree based replica allocation techniques are inspired by human friendship management in the real world; He/she does

not have to discuss these with others to maintain the friendship. The decision is solely at his/her discretion. After building the SCF-tree, a node allocates replica at every relocation period.

Algorithm:

1. **Initialize :**
   a. Initialize node memory(in pkt)
   b. Initialize the update timer
2. **Send request** for allocate replica
3. **If node selfish**
   a. Give wrong reply or no response
4. **If not**
   a. Send correct reply
5. **If reply** is received by originator
   a. Process the reply
   b. And make the route
6. **If timer** is triggered
   a. Send the query for checking
7. **If node** is correspond node then sends the query reply
8. **Originator** checks the query reply
   a. And forms the SCF tree
   b. And allocates priority and replica according to the tree

B. The P2PSIP Protocol

P2PSIP implements traditional proxy and registrar SIP functions in a distributed way. The main advantages of P2PSIP are cost reduction and the elimination of single failure points. DHT-based P2P network can locate resources in a decentralized way. The clients only use resources from the overlay. Kademlia's distributed resource tables (DRTs) are similar to DHTs employed for peer registration A P2PSIP deployment has an overlay name and the participants is peers SIP clients. The peers are identified by a peer-ID and they collectively serve as a directory service for locating resources

using the defined DHT structure. In order to keep registers up-to-date. Protocol dSIP [11] uses SIP messages to implement P2PSIP dSIP has several advantages:

- Simplicity of implementation (still text-based)
- Minimization of the number of protocols required for a P2P UA.
- Easy integration into existing UAs and reuse of available SIP stack implementations.
- Widespread support.

The message to add, remove and query bindings in DHT and resource tables is SIP REGISTER [12]. dSIP supports:

- Peer and resource registration.
- Session establishment.
- DHT maintenance (dSIP is modular, so it allows multiple DHTs).

dSIP peers are active members of the overlay and provide operations to enable self-organization The dSIP overlay serves as a directory service for locating resources.

C. Vehicular Network (VANET)

VANET is one type of mobile ad hoc network where each vehicle act as a router either V2V [13] looks at location awareness to support agent mobility. One of the interesting applications of this idea is virtual sensor network composed of software agents that done the task in form of sensing services with the help of available resources provided by physical nodes like computer platforms communication devices or physical sensor devices. The work in [14] presents data management as a solution for event modify in vehicular networks and comparison of two different models in the first approach is helpful to estimate the relevance of events by calculating of

geographic vectors; and second approach exploits digital road maps for data management and sharing in vehicular networks as well as the first approach is useful in cars where maps is available has been proved by an exhaustive simulation-based experimental evaluation[15].

D. Dynamic Source Routing Protocol

DSR is a reactive routing protocol with no periodic update messages like table-driven routing protocols to manage a MANET. It is specifically designed for use in multi-hop wireless ad hoc networks where the protocol access the network to be completely self-configuring self-organizing where there is no need for an existing network infrastructure or administration. DSR was developed for MANETs with a moderate speed at small diameter of 5 to 10 hops. DSR uses the Link-State-Algorithms that is each node can be able to save the best way to a destination. Whatever may be changes were made in the network topology will be broadcasted to the whole network by flooding. DSR contains 2 phases Route Discovery (find a path), Route Maintenance (maintain a path).

5. PERFOMANCE

The output of each technique in the simulation test on NS-2 the hit rates and average delays of the four protocols. We used the following metrics in the experiments:

- **Hit Rate**: It is the number of requests successfully handled by either original files or replica files.
- **Average delay:** This is the average time of all requests that finish execution. The delay that calculates

using the throughput and the performance of the requests.

Hit Rate: The hit rates of the four methods with the simulations results .The hit rates continue SAF>DAFN> DCG >PBDR. The PBDR achieve higher hit rate than other methods. since PBDR realizes distributed way. PBDR considers the intermediate connection properties of disconnected MANETs and replications. DCG only considers temporarily connected group for file replication.
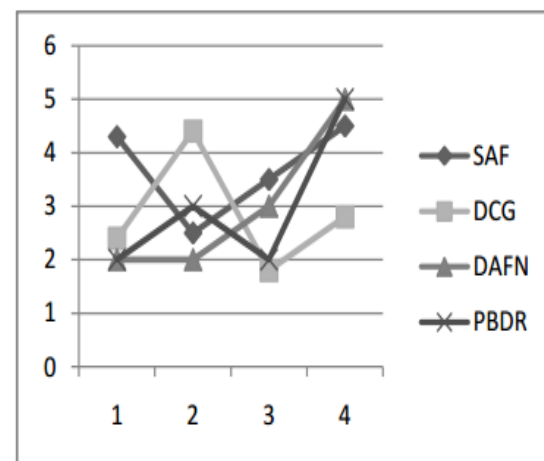

Fig.5(a) Hit Rate

Average Delay: Demonstrate the average delays of the four methods with simulation results. The average delays shows PBDR<SAF<DAFN which is in reverse order of the relationship between the four methods on hit rate as shown in Figs. 5a. This is because the average delay is related to the overall file availability in descending order memory resources for replicas. The PBDR has the minimum average delay in the simulation results.
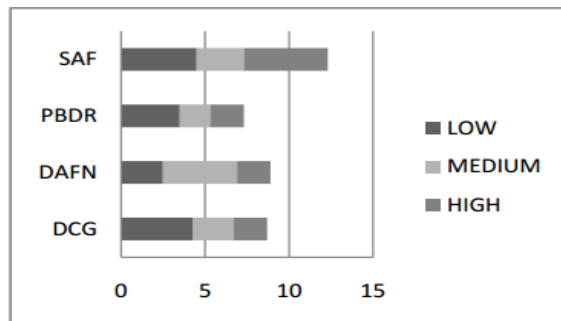
Fig.5(b) Average Delay

6. CONCLUSION

We also plan to improve the current leveling technique by considering the frequency of disconnections and/or the weighted ratio of total number of items and average of shared memory space. This survey presents various mobile applications, including facility of data sharing and data storing for easy and handy access to the static and dynamic information in the mobile databases. It also discussed the various communication strategies in mobile ad hoc networks. And proposed model is used in any network environment having limited number of resources and maximum number of transmissions. This cluster monitored will also decrease the overhead which may be happened while cluster head has maintaining the routes. IDS will identify the nodes as trusted and un trusted based on some threshold values and also inform about entrusted to all nodes in the network to transfer data in a secured manner. We are currently working on the impact of data updates and different moving patterns on our scheme. In future the proposed scheme can be extended for identifying the requirements of the network for best effort network services

7. FUTURE WORK

Future work consists in enhancing protocol with quality of service mechanisms and providing measurement studies of the protocol performance and could focus on studying the overlay topology creation and adaptation in case of unknown traffic demands. A hybrid network with a mix of selfish and cooperative nodes is an additional interesting scenario. Heterogeneous values of the overlay cost coefficient could is proposed for each node in the network, and its effect on the overlay topology creation could be studied.

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