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P2P Sharing Cluster Proximity Interest-Aware File System

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ABSTRACT:

Effective file question is predominant to the overall efficiency of peer-to-peer (P2P) file sharing methods. Clustering friends by using their customary pursuits can significantly increase the efficiency of file question. Clustering peers by their bodily proximity may additionally fortify file query performance. Nevertheless, few current works are in a position to cluster peers founded on each peer interest and bodily proximity. Even though structured P2Ps furnish larger file query effectivity than unstructured P2Ps, it's complicated to understand it because of their strictly defined topologies. In this work, we introduce a Proximity-mindful and interest-clustered P2P file sharing process (PAIS) established on a structured P2P, which forms bodily-shut nodes right into a cluster and further corporations physically-shut and long-established-curiosity nodes into a sub-cluster established on a hierarchical topology. PAIS uses an clever file replication algorithm to further increase file query efficiency. It creates replicas of files which can be most of the time requested through a bunch of physically shut nodes of their location. In addition, PAIS enhances the intra-sub-cluster file shopping by means of a number of strategies. First, it further classifies the curiosity of a sub-cluster to a number of sub-interests, and clusters original-sub-interest nodes into a bunch for

file sharing. Second, PAIS builds an overlay for every crew that connects curb capacity nodes to better ability nodes for disbursed file querying whilst heading off node overload. 1/3, to lessen file searching lengthen, PAIS uses proactive file expertise assortment so that a file requester can recognize if its requested file is in its nearby nodes. Fourth, to lower the overhead of the file knowledge collection, PAIS makes use of bloom filter centered file information assortment and corresponding allotted file browsing. Fifth, to give a boost to the file sharing efficiency, PAIS ranks the bloom filter outcome so as. Sixth, on the grounds that that a not too long ago visited file tends to be visited once more, the bloom filter established method is more advantageous by simplest checking the newly added bloom filter understanding to scale back file searching lengthen. Trace-driven experimental outcome from the actual-world PlanetLab testbed display that PAIS dramatically reduces overhead and enhances the efficiency of file sharing with and with out churn. Further, the experimental outcome show the excessive effectiveness of the intra-sub-cluster file looking tactics in bettering file looking effectivity

INTRODUCTION

Efficient file query is important to the overall performance of peer-to-peer (P2P) file sharing systems. Clustering peers by their common interests can significantly enhance the efficiency of file query. Clustering peers by their physical proximity can also improve file query performance. However, few current works are able to cluster peers based on both peer interest and physical proximity. Although structured P2Ps provide higher file query efficiency than unstructured P2Ps, it is difficult to realize it due to their strictly defined topologies. In this work, we introduce a Proximity-Aware and Interest-clustered P2P file sharing System (PAIS) based on a structured P2P, which forms physically-close nodes into a cluster and further groups physically-close and common-interest nodes into a sub-cluster based on a hierarchical topology. PAIS uses an intelligent file replication algorithm to further enhance filequery efficiency. It creates replicas of files that are frequently requested by a group of physically close nodes in their location. Moreover, PAIS enhances the intra-sub-cluster file searching through several approaches.

1.1 EXISTING SYSTEM:

- A key criterion to judge a P2P file sharing system is its file location

efficiency. To improve this efficiency, numerous methods have been proposed. One method uses a super peer topology which consists of supernodes with fast connections and regular nodes with slower connections. A supernode connects with other supernodes and some regular nodes, and a regular node connects with a supernode. In this super-peer topology, the nodes at the center of the network are faster and therefore produce a more reliable and stable backbone. This allows more messages to be routed than a slower backbone and, therefore, allows greater scalability. Super-peer networks occupy the middle-ground between centralized and entirely symmetric P2P networks, and have the potential to combine the benefits of both centralized and distributed searches.

- Another class of methods to improve file location efficiency is through a proximity-aware structure.
- The third class of methods to improve file location efficiency is to cluster nodes with similar interests which reduce the file location latency.

1.2 DISADVANTAGES OF EXISTING SYSTEM:

- Although numerous proximity-based and interest-based super-peer topologies have been proposed with different features, few methods are able to cluster peers according to both proximity and interest.
- In addition, most of these methods are on unstructured P2P systems that have no strict policy for topology construction.
- They cannot be directly applied to general DHTs in spite of their higher file location efficiency.

1.3 PROPOSED SYSTEM:

- This paper presents a proximity-aware and interest-clustered P2P file sharing System (PAIS) on a structured P2P system. It forms physically-close nodes into a cluster and further groups physically-close and common-interest nodes into a sub-cluster. It also places files with the same interests together and make them accessible through the DHT Lookup() routing function. More importantly, it keeps all advantages of DHTs over unstructured P2Ps. Relying on DHT lookup policy rather than broadcasting, the PAIS construction consumes much less cost in mapping nodes to clusters and mapping clusters to interest sub-clusters. PAIS uses an intelligent file replication algorithm to further enhance file lookup efficiency.
- It creates replicas of files that are frequently requested by a group of physically close nodes in their location. Moreover, PAIS enhances

the intra sub-cluster file searching through several approaches

1.4 ADVANTAGES OF PROPOSED SYSTEM:

- The techniques proposed in this paper can benefit many current applications such as content delivery networks, P2P video-on-demand systems, and data sharing in online social networks.
- We introduce the detailed design of PAIS. It is suitable for a file sharing system where files can be classified to a number of interests and each interest can be classified to a number of sub-interests.
- It groups peers based on both interest and proximity by taking advantage of a hierarchical structure of a structured P2P.
- PAIS uses an intelligent file replication algorithm that replicates a file frequently requested by physically close nodes near their physical location to enhance the file lookup efficiency.
- PAIS enhances the file searching efficiency among the proximity-close and commoninterest nodes through a number of approaches.

2.LITERATURE SURVEY

2.1 A Survey on P2P File Sharing Algorithms over MANETs

Mobile Ad hoc Networks (MANETs) consist of a collection of wireless mobile devices dynamically forming a temporary network without the use of any existing network infrastructure or centralized administration. File sharing is a popular used application, which has important status in MANETs. File sharing in MANETs is mainly based on Peer-to-Peer (P2P) network. And a P2P file sharing system generally consists of a search algorithm and a file transfer protocol in which search algorithm attracts a lot of attention. In this paper, we overview and analyze the recently researches about file sharing algorithms. We categorize them into four categories: the DHT-based methods, flooding-based methods, advertisement-based methods and social-based methods according to different searching method. We present a comprehensive up to date survey of these methods. Furthermore, we analyze

some challenging issues which inspire the future work.

2.2 Designing Mobility Models based on Social Network Theory

Validation of mobile ad hoc network protocols relies almost exclusively on simulation. The value of the validation is, therefore, highly dependent on how realistic the movement models used in the simulations are. Since there are a very limited number of available real traces in the public domain, synthetic models for movement pattern generation must be used. However, most widely used models are currently very simplistic, their focus being ease of implementation rather than soundness of foundation. Simulation results of protocols are often based on randomly generated movement patterns and, therefore, may differ considerably from those that can be obtained by deploying the system in real scenarios. Movement is strongly affected by the needs of humans to socialise or cooperate, in one form or another. Fortunately, humans are known to associate in particular ways that can be mathematically modelled and that have been studied in social sciences for years. In this paper we propose a new mobility model founded on social network theory. The model allows collections of hosts to be grouped together in a way that is based on social relationships among the individuals. This clustering is then mapped to a topographical space, with movements influenced by the strength of social ties that may also change in time. We have validated our model with real traces by showing that the synthetic mobility traces are a very good approximation of human movement patterns. The impact of the adoption of the proposed algorithm on the performance of AODV and DSR is also presented and discussed.

2.3 Modelling Time-variant User Mobility in Wireless Mobile Networks

Realistic mobility models are important to understand the performance of routing protocols in wireless ad hoc networks, especially when mobility-assisted routing schemes are employed, which is the case, for example, in delay-tolerant

networks (DTNs). In mobility-assisted routing, messages are stored in mobile nodes and carried across the network with nodal mobility. Hence, the delay involved in message delivery is tightly coupled with the properties of nodal mobility. Currently, commonly used mobility models are simplistic random model that do not reflect realistic mobility characteristics. In this paper we propose a novel time-variant community mobility model. In this model, we define communities that are visited often by the nodes to capture skewed location visiting preferences, and use time periods with different mobility parameters to create periodical re-appearance of nodes at the same location. We have clearly observed these two properties based on analysis of empirical WLAN traces. In addition to the proposal of a realistic mobility model, we derive analytical expressions to highlight the impact on the hitting time and meeting times if these mobility characteristics are incorporated. These quantities in turn determine the packet delivery delay in mobility-assisted routing settings. Simulation studies show our expressions have error always under 20%, and in 80% of studied cases under 10%.

2.4 Social Network Analysis for Routing in Disconnected Delay-Tolerant MANETs

Message delivery in sparse Mobile Ad hoc Networks (MANETs) is difficult due to the fact that the network graph is rarely (if ever) connected. A key challenge is to find a route that can provide good delivery performance and low end-to-end delay in a disconnected network graph where nodes may move freely. This paper presents a multidisciplinary solution based on the consideration of the socalled small world dynamics which have been proposed for economy and social studies and have recently revealed to be a successful approach to be exploited for characterising information propagation in wireless networks. To this purpose, some bridge nodes are identified based on their centrality characteristics, i.e., on their capability to broker information exchange among otherwise disconnected nodes. Due to the complexity of the

centrality metrics in populated networks the concept of ego networks is exploited where nodes are not required to exchange information about the entire network topology, but only locally available information is considered. Then SimBet Routing is proposed which exploits the exchange of pre-estimated 'betweenness' centrality metrics and locally determined social 'similarity' to the destination node. We present simulations using real trace data to demonstrate that SimBet Routing results in delivery performance close to Epidemic Routing but with significantly reduced overhead. Additionally, we show that Sim- Bet Routing outperforms PRoPHET Routing, particularly when the sending and receiving nodes have low connectivity.

2.5 The Age of Impatience: Optimal Replication Schemes for Opportunistic Networks

Multimedia content dissemination in mobile settings requires significant bandwidth. Centralized infrastructure is often either inadequate or overly expensive to fill the demand. Here, we study an alternative P2P content dissemination scheme for mobile devices (e.g., smart-phones), which leverages local dedicated caches on these devices to opportunistically fulfil user requests. In our model, the allocation of content in the global distributed cache comprising the union of all local caches, determines the pattern of demand fulfilment. By selectively replicating local content at node meetings, the global cache can be driven towards a more efficient allocation. However, the allocation's efficiency itself is determined by a previously overlooked factor - the impatience of content requesters. By describing user impatience in the form of any monotonically decreasing delay-utility functions, we show that an optimal allocation can be efficient computed or approximated. As users become increasingly impatient, the optimal allocation varies steadily between uniform and highly-skewed towards popular content. Moreover, in opportunistic environments, the global cache state may be difficult or impossible to obtain, requiring that replication decisions be made using only

local knowledge. We develop a reactive distributed algorithm, Query Counting Replication (QCR) that for any delay-utility function drives the global cache towards the optimal allocation – without use of any explicit estimators or control channel information. We validate our techniques on real-world contact traces, demonstrating the robustness of our analytic results in the face of heterogeneous meeting rates and bursty contacts. We find QCR compares favorably to a variety of heuristic perfect control-channel competitors.

CONCLUSION

In recent years, to enhance file location efficiency in P2Psystems, interest-clustered super-peer networks and proximity-clustered super-peer networks have been proposed. Although both strategies improve the performance of P2Psystems, few works cluster peers based on both peer interest and physical proximity simultaneously. Moreover, it is harder to realize it in structured P2P systems due to their strictly defined topologies, although they have high efficiency of file location than unstructured P2Ps. In this project, we introduce a proximity-aware and interest-clusteredP2P file sharing system based on a structured P2P. It groups peers based on both interest and proximity by taking advantage of a hierarchical structure of a structuredP2P. PAIS uses an intelligent file replication algorithm that replicates a file frequently requested by physically close nodes near their physical location to enhance the file lookup efficiency. Finally, PAIS enhances the file searching efficiency among the proximity-close and common interest nodes through a number of approaches. The trace-driven experimental results on Planet Lab demonstrate the efficiency of PAIS in comparison with other P2P file sharing systems. It dramatically reduces the overhead and yields significant improvements in file location efficiency even in node dynamism. Also, the experimental results show the effectiveness of the approaches for improving file searching efficiency among the proximity close and common-interest nodes.

FUTURE SCOPE

As a result of the impasse, the groups have found themselves continually in court during the past few years. The most recent

decision, made by the Ninth District Court of California, went in favor of the P2P vendors. The judge, citing a 1980 case involving Sony's VCR, noted that the company was not responsible for any copyright infringements undertaken by its consumers. The RIAA has appealed the most recent P2P ruling, a process that is expected to be completed by February 2004.In addition to going after the software suppliers, the RIAA decided to bring action directly against individuals who illegally download music. In September, the RIAA served subpoenas to 241 people who each had made hundreds -- sometimes thousands -- of songs available over the Internet, and the organization went after 80 more individuals in October. The group reached settlement with about half of those charged. In addition, the organization offered an amnesty program for individuals who wanted to avoid potential prosecution. As a result, more than 1 million illegal items have been deleted, and the P2P networks have seen significant drops in traffic: Kazak's traffic is down by as much as 40 percent.

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