A Top Catching Scheme Consistency Controlling in Hybrid P2P Network

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Abstract

In the recent years, the development of a new wave of innovative network architectures labeled "peer to peer (p2p)" has been observed. A peer to- peer (p2p) network is a dispersed system in which peers utilize dispersed resources to execute a significant function in a decentralized fashion. Nodes in a p2p network usually play identical roles and these nodes are called peers. P2P network is dived into two types: structured Peer to Peer networks in which peers are associated by a normal topology and unstructured peer to peer networks in topology are random. To design a Hybrid Peer to peer network system for dispersed data distribution which combines the advantages of two types of Peer to Peer networks and reduces their drawbacks in the objective of our work. The reliability preservation is propagating and updates from a basic files to its copy. Adaptive Consistency Maintenance Algorithm (ACMA) upholds that periodically polls the file owner to update the file due to lowest number of replications reliability overheads is very low. So we develop a mechanism which combines both file replication and consistency maintenance using adaptive polling method to fully exploit file popularity and update rate for efficient and effective replica consistency maintenance. Top Caching algorithm helps to improve the system performance and to build up a fully dispersed cache for mostly accepted data. It efficiently eliminate the over caching problems for the most accepted objects.

Keywords: Peer to Peer Network, Data Distribution, Top Caching Algorithm, Reliability Preservation.

1. Introduction

A dispersed system in which peers make use of distributed supplies to carry out a significant function in a decentralized manner is a peer to peer network. The flexibility of the overlay topology and the decentralized control of the Peer to Peer network make it suitable for distributed applications. Every link in a peer to peer overlay corresponds to a sequence of physical links in the underlying network. Nodes in Peer to Peer networks are also called peers because normally play equal roles. The peer to peer participants join or

leave the peer to peer system regularly, for this reason, they are dynamic in name and used for distributed computing which utilizes the idle resources in the network for huge computing tasks standard topology is maintained among peers. Consequently, neither structured peer to peer networks unstructured peer to peer networks can be make available well organized, elastic, and vigorous service unaided.

A hybrid peer to peer system for distributed data sharing which combines the structured and unstructured Peer to Peer networks is proposed where a structured ring based core network forms the stamina of the system and numerous unstructured Peer to Peer networks are attached to the backbone and correspond with each other all the way through the backbone. The core structured network provides a correct way to constricted down the queried data contained by a convinced unstructured network. Whereas the unstructured network provides a little cost method for peer to unit or depart the system freely. A hybrid peer to peer has shown in fig.1 for distributed data sharing is projected which utilizes both the competence of the structured peer to peer system so that at regular intervals the file owner to modernize the file due to number of replicas steadiness overhead is very short. To increase the performance of hybrid peer to peer, Top Catching algorithm is used to build a completely distributed cache for accepted information in peer to peer systems. It efficiently relieves the over

caching trouble for the most part accepted items.
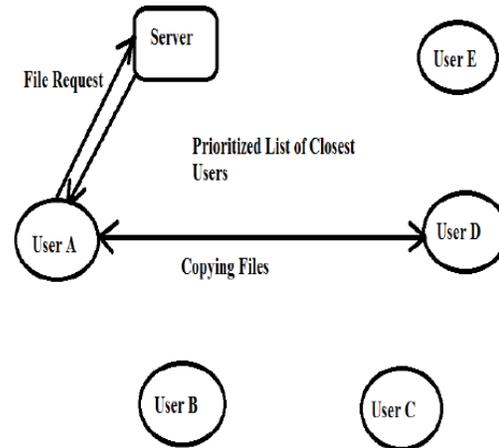
Fig 1.1 Hybrid P2P Architecture

2. Related Work

In the past system storage nodes and files are each assigned uniformly distributed identifiers, and replicas of a files are stored at nodes whose identifier matches most closely the files identifier. This statistical assignment of files to storage nodes approximately balance the number of files stored on each node. While current Peer to Peer system facilitate static file sharing newly developed applications demand that P2P system be able to manage dynamically changing files. Maintaining consistency between frequently updated files and their replicas is a fundamental reliability requirement for a P2P system. The main contribution of this paper can be summarized as follows:

Propose a hybrid peer to peer system for distributed data sharing. It utilizes both the

efficiency of the structured peer to peer network and achieves a good balance between the efficiency and flexibility. To maintain consistency, using file consistency algorithm for hybrid P2P system so that periodically the file owner to update the file due to number of replicas consistency overhead is very low.

To boost the performance of hybrid P2P, Top Caching algorithm is used to build a fully distributed cache for popular information in P2P systems. If effectively relies the over caching problems for the most popular objects.

3. Topology preservation overhead caused by peer combination or separation

A core transient network and many stub networks, each of which is attached to a node in the core transient network are comprised in the novel hybrid peer to peer system. The core transient network is a structured peer to peer network, which systematize peers into ring. Peers in the transient network are known as transit peers. Each transit peer is allocated a peer ID and it upholds two pointers, which point to its successor and predecessor, correspondingly. Gnutella style unstructured peer to peer network is a stub network. The topology of stub network is randomly formed. Each stub network is attached to a transit peer and this transit peer belongs to both the transit network and the stub network. The topology of a stub network is used to provide well organized and precise service while the stub

network is sued to provide estimated best effort service to contain flexibility. Peers can join moreover transit network or stub network directly. The hybrid system can efficiently decrease the topology maintenance overhead caused by peer joining or departure. The hybrid peer to peer system is applied to disperse data contribution. A data item is represented by a key, value pair. A key is label of the data, while a value is the content connected with the key.

4. Reliability among updated files

The dispersed data sharing the consistency of the data needs to be determined because there are two different networks are built on particular, maintaining constancy linking frequently updated or even infrequently updated files and their replicas is an elementary dependability requirement for a peer to peer system. Peer to peer system are considered by dynamism, I which node link and depart constantly and rapidly. Additionally, replica nodes are vigorously and constantly produced and deleted. For consistency protection, an algorithm for hybrid network is introduces which is known as Adaptive File Consistency Algorithm. Polling frequency Determination: Adaptive Consistency Algorithm makes use of a linear augment multiplicative diminish algorithm in which regularly modified files is polled more commonly than moderately static files. Time to refresh value with each replica is assigned. The Time to refresh represent the

next time instant a node should poll the owner to remain its copy restructured. The value is augmented by an additive amount if the file does not modify between consecutive poll Adaptive polling reduction. In adaptive File Consistency Algorithm combines file query rate into deliberation for poll time determination. We use Time to refresh query and time to refresh poll to indicate the next time instant of equivalent operation of a file. Caching Algorithm: A Hybrid Peer to Peer caching system should take into account dynamic description of peers. Unlike static dedicated caches peers may unite or go away a peer to peer network with dynamism. Consequently, the system should diminish the management overheads and the performance deprivation caused by energetic contribution of peers.

The Top Caching (TC) algorithm is a fully distributed, adaptive content management algorithm that is for all practical purposes, optimal for DHT based file sharing system. Some of the parameters used are Failure Route, join latency and lookup latency.
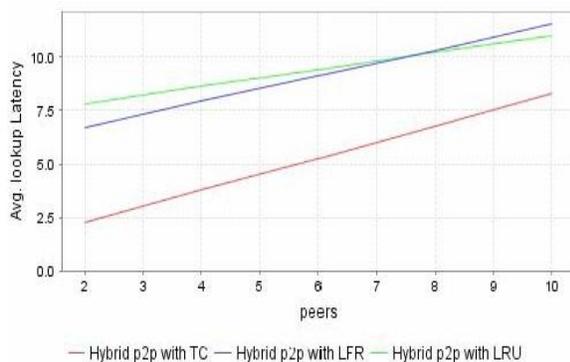
Fig.4.1 Join Latency Comparison

Finally, the system will perform well by Consistency and Caching schemes and also boost the system performance.

5. Conclusion

In this paper we are proposed a hybrid peer to peer system that joins both the structured peer to peer network and the unstructured peer to peer networks to present a well organized and flexible distribution service. Hence, the hybrid system has less lookup latency and higher data lookup efficiency. It reduces redundant file replicas, consistency maintenance overhead, and unnecessary file updates. Top Caching (TC) algorithm is used for caching the most popular and rate data items. Nevertheless it also helps to boost the system performance. Our caching scheme can be bring lesser query interruption better load balance and higher cache hit ratios. It efficiently alleviates the over caching problems and to balance the load of the hosting peer when many peers request popular data.

References

[1] Yang M, Yang Y. An Efficient Hybrid Peer-to-Peer System for Distributed Data Sharing. IEEE transaction on Computers 2010; 59(9).
[2] Shen H. IRM: Integrated File Replication and Consistency Maintenance in P2P Systems. IEEE trans on parallel and distributed systems, Jan 2010; 21(1).
[3] JzerJoung Y, WenLin Z. On the self-organization of a hybrid peer-to-peer system. ELSEVIER, Journal of Network and Computer Appln 2010; 33.

[4] Li Z, Xie G, Li Z. Efficient and scalable consistency maintenance for heterogeneous peer-to-peer systems. TPDS 2008.

[5] Loo BT, Huebsch R, Stoica I, Hellerstein JM. The Case for a Hybrid p2p Search Infrastructure. Proc. Workshop Peerto- Peer Systems (IPTPS '04) Feb. 2004; 141-150.

[6] Gopalakrishnan V, Silaghi B, Bhattacharjee B, Keleher P. Adaptive replication in peer-to-peer systems. Proc. Of ICDCS, 2004.

[7] P2P traffic is booming, BitTorrent The Dominant Protocol. http://torrentfreak.com/p2p-traffic-still-booming-071128/

[8] Linga P, Gupta I, Birman K. Kache: Peer-to-peer web caching using kelips. In submission, June 2004.

[9] Ganesan P, Sun Q, Garcia-Molina H. YAPPERS: A Peerto- Peer Lookup Service over Arbitrary Topology. Proc. IEEE INFOCOM 2003; 1250-1260.

[10] Lan J, Liu X, Shenoy P, Ramamritham K. Consistency maintenance in peer-to-peer file sharing networks. Proc. The IEEE Workshop on Internet Applications, WIAPP, 2003.

[11] Cohen E, Shenker S. Replication strategies in unstructured peerto- peer network's. Proc. of ACM SIGCOMM, 2002.

[12] Rowstron A, Druschel P. Storage management and caching in PAST, a large scale, persistent peer-to-peer storage utility. Proc. of SOSP, 2001.