Available online at www.elixirpublishers.com (Elixir International Journal)

Computer Science and Engineering

Elixir Comp. Sci. & Engg. 58A (2013) 14680-14682

ISSN: 2229-712X

Reducing transfer latency of peer to peer system using unstructured model

K. Anbarasi[1], J.R. Johncy Leadiah Bai[2] and T. Shantha Kumar[3]
[1]Alpha College of Engg, Chennai, T.N, India,
[2]Department of Bio-Medical, Alpha College of Engg, Chennai, T.N, India,
[3]Department of CSE, Alpha College of Engg, Chennai, T.N, India.

ARTICLE INFO

Article history:
Received: 13 October 2012;
Received in revised form:
17 March 2013;
Accepted: 2 April 2013;

Keywords
Peer-to-peer networks,
Queuing model,
System performance evaluation.

ABSTRACT
This paper presents a queuing model to evaluate the latency associated with file transfers or replications in peer-to-peer (P2P) computer systems. The main contribution of this paper is a modelling framework for the peers that accounts for the file size distribution, the search time, load distribution at peers, and number of concurrent downloads allowed by a peer. We propose a queuing model that models the nodes or peers in such systems as M/G/1/K processor sharing queues. The model is extended to account for peers which alternate between online and offline states. The proposed queuing model for the peers is combined with a single class open queuing network for the routers interconnecting the peers to obtain the overall file transfer latency. We also show that in scenarios with multipart downloads from different peers, a rate proportional allocation strategy minimizes the download times.

Introduction

Traditional client server model of most networked branching process-based Markov models are presented in computing applications by allowing all users to act as both and focus on clients and servers. The primary use of such networks so far the steady-state behaviour of the number of peers in the has been to swap media files within a local network or over network. A closed queuing system model for P2P systems the Internet as a whole. These systems have grown in is presented in [16] that focuses on the saturation popularity in the recent past and the fraction of network throughput of the system and ignores the effect of the traffic originating from these networks has consistently network topology. The existing models in literature fail to increased. Developing models to understand and quantify capture the performance of a P2P system in terms of a the impact of factors affecting their performance is of user's viewpoint: "How long does it take to replicate a file, if importance to facilitate the development of P2P systems available, in the P2P system?" while accounting for the and to ensure proper utilization of the networking infra- various users.

This paper addresses this issue. Queuing model for evaluating the performance of peers in The latency associated with a file replication in a P2P such systems in terms of the latencies associated with file system consists of two components: the query search time replication while accounting for architectural, topological, and the time required by the peers to transmit the file.

RELATED WORK AND EXISTING MODEL

The latency associated with a file replication in a P2P such systems in terms of the latencies associated with file system consists of two components: the query search time replication while accounting for architectural, topological and the time required by the peers to transmit the file. In and user-related factors. Order to model the peer level latency, we develop a queuing the paradigm shifts associated with P2P systems and its model to evaluate the time required at each peer to serve its inherent features necessitate the development of new replication requests. Each peer is modelled as M/G/1/K models to account for their behaviour. The presence of a processor sharing (PS) queue with arbitrary constraints on node in the P2P system can be transitory with peers the number of simultaneous downloads allowed by the continually joining and leaving the network arbitrarily over peers and file size distributions. We also develop models to any given period of time. Also, network and end user evaluate the search time associated with a query in both heterogeneities like different access speeds at different centralized and decentralized P2P systems. To evaluate the peers, file popularity, number of simultaneously allowable overall delay, these models are then combined with existing downloads at a peer, etc., need to be taken into account to results for single class open queuing networks with arbitrary get realistic results.

Byung Hoon Lee, Seoul (KR) Invented the Mobile Communication with Medication System in the year 2008. In his Paper he mentioned the medication system and instant appointment fixing in the hospitals for the patients.

In modern definitions of peer-to-peer technology, the term implies the general architectural concepts outlined in this article. However, the basic concept of peer-to-peer computing was envisioned in earlier software systems and networking discussions, reaching back to principles stated in the first Request for Comments. A distributed messaging system that is often likened as an early peer-to-peer architecture is the USENET network news system that is in principle a client–server model from the user or client perspective, when they read or post news articles. The same consideration applies to SMTP email in the sense that the core email relaying network of Mail transfer agents has a peer-to-peer character, while the periphery of e-mail clients and their direct connections is strictly a client–server relationship. Tim Berners-Lee's vision for the World Wide Web, as evidenced by his Worldwide Web editor/browser, was close to a peer-to-peer design in that it assumed each user of

Tele:
E-mail addresses: anbumecse@yahoo.com

the web would be an active editor and contributor creating and linking content to form an interlinked web of links. This contrasts to the broadcasting-like structure of the web as it has developed over the years.

An unstructured P2P network is formed when the overlay links are established arbitrarily. Such networks can be easily constructed as a new peer that wants to join the network can copy existing links of another node and then form its own links over time. In an unstructured P2P network, if a peer wants to find a desired piece of data in the network, the query has to be flooded through the network to find as many peers as possible that share the data. The main disadvantage with such networks is that the queries may not always be resolved. Popular content is likely to be available at several peers and any peer searching for it is likely to find the same thing. But if a peer is looking for rare data shared by only a few other peers, then it is highly unlikely that search will be successful. Since there is no correlation between a peer and the content managed by it, there is no guarantee that flooding will find a peer that has the desired data. Flooding also causes a high amount of signaling traffic in the network and hence such networks typically have very poor search efficiency.

Structured P2P networks employ a globally consistent protocol to ensure that any node can efficiently route a search to some peer that has the desired file, even if the file is extremely rare. Such a guarantee necessitates a more structured pattern of overlay links. By far the most common type of structured P2P network is the distributed hash table (DHT), in which a variant of consistent hashing is used to assign ownership of each file to a particular peer, in a way analogous to a traditional hash table's assignment of each key to a particular array slot.

DHT-based networks have been widely utilized for accomplishing efficient resource discovery [4][5] for grid computing systems, as it aids in resource management and scheduling of applications. Resource discovery activity involves searching for the appropriate resource types that match the user's application requirements.

Recent advances in the domain of decentralized resource discovery have been based on extending the existing DHTs with the capability of multi-dimensional data organization and query routing. Majority of the efforts have looked at embedding spatial database indices such as the Space Filling Curves (SFCs) including the Hilbert curves, Z-curves, k-d tree, MX-CIF Quad tree and R*-tree for managing, routing, and indexing of complex Grid resource query objects over DHT networks. Spatial indices are well suited for handling the complexity of Grid resource queries. Although some spatial indices can have issues as regards to routing load-balance in case of a skewed data set, all the spatial indices are more scalable in terms of the number of hops traversed and messages generated while searching and routing Grid resource queries.

PEER-PEER STRUCTURE AND SPECIFICATION

The In P2P networks, clients provide resources, which may include bandwidth, storage space, and computing power. As nodes arrive and demand on the system increases, the total capacity of the system also increases. In contrast, in a typical client–server architecture, clients share only their demands with the system, but not their resources. In this case, as more clients join the system, less resource are available to serve each client. The distributed nature of P2P networks also increases robustness, and—in pure P2P systems by enabling peers to find the data without relying on a centralized index server. In the latter case, there is no single point of failure in the system. As with most network systems, unsecure and unsigned codes may allow remote access to files on a victim's computer or even compromise the entire network.

In the past this has happened for example to the Fast Track network when anti P2P companies managed to introduce faked chunks into downloads and downloaded files (mostly MP3 files) were unusable afterwards or even contained malicious code. Consequently, the P2P networks of today have seen an enormous increase of their security and file verification mechanisms. Modern hashing, chunk verification and different encryption methods have made most networks resistant to almost any type of attack, even when major parts of the respective network have been replaced by faked or non-functional hosts.

Some researchers have explored the benefits of enabling virtual communities to self-organize and introduce incentives for resource sharing and cooperation, arguing that the social aspect missing from today's peer-to-peer systems should be seen both as a goal and a means for self-organized virtual communities to be built and fostered.[9] Ongoing research efforts for designing effective incentive mechanisms in P2P systems, based on principles from game theory are beginning to take on a more psychological and information-processing direction.

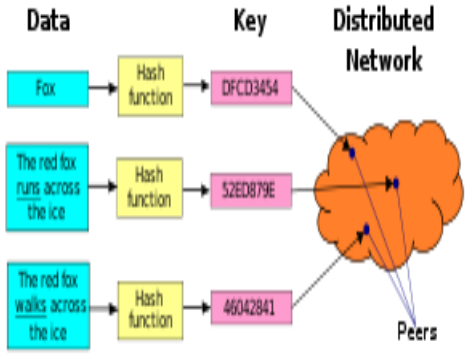

Figure. 1.0 Peer to Peer in Distributed Network

Distributed hash tables (DHTs) are a class of decentralized distributed systems that provide a lookup service similar to a hash table: (key, value) pairs are stored in the DHT, and any participating node can efficiently retrieve the value associated with a given key. Responsibility for maintaining the mapping from keys to values is distributed among the nodes, in such a way that a change in the set of participants causes a minimal amount of disruption. This allows DHTs to scale to extremely large numbers of nodes and to handle continual node arrivals, departures, and failures. DHTs form an infrastructure that can be used to build peer-to-peer networks. Notable distributed networks that use DHTs include BitTorrent's distributed tracker, the Kad network, the Storm botnet, YaCy, and the Coral Content Distribution Network.

DHT-based networks have been widely utilized for accomplishing efficient resource discovery [4][5] for grid computing systems, as it aids in resource management and scheduling of applications. Resource discovery activity involves searching for the appropriate resource types that match the user's application requirements. Recent advances in the domain of decentralized resource discovery have been based on extending the existing DHTs with the capability of multi-dimensional data organization and query routing.

Majority of the efforts have looked at embedding spatial database indices such as the Space Filling Curves (SFCs)

including the Hilbert curves, Z-curves, k-d tree, MX-CIF Quad tree and R*-tree for managing, routing, and indexing of complex Grid resource query objects over DHT networks. Spatial indices are well suited for handling the complexity of Grid resource queries. Although some spatial indices can have issues as regards to routing load-balance in case of a skewed data set, all the spatial indices are more scalable in terms of the number of hops traversed and messages generated while searching and routing Grid resource queries.

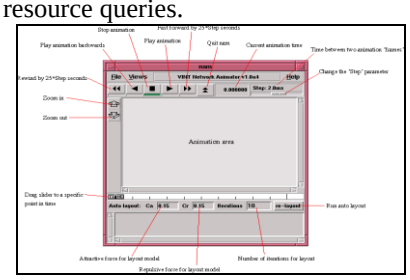

Figure. 2.0 Layered Model

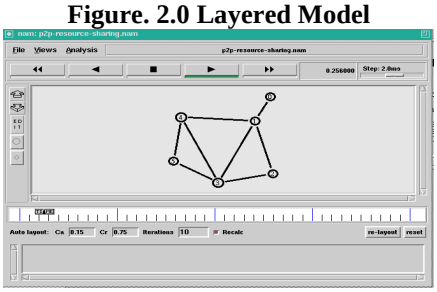

Figure. 3.0 Resource Model

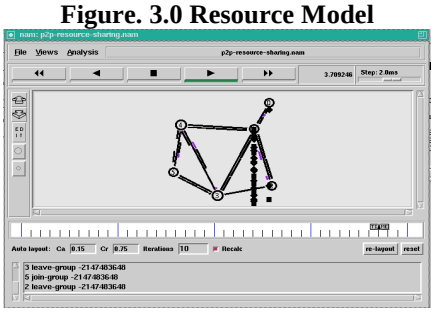

Figure. 4.0 Layered model in system

In this section, we evaluate the search performance in a network where every node is capable of building knowledge with respect to the target through some learning mechanisms. Any forwarding mechanism can improve the search performance by leveraging over the knowledge .For example, It uses the adaptive probability learning mechanism and adopts RW as the forwarding mechanism.

Besides, other forwarding mechanisms, e.g., MBFS or our dynamic forwarding, are also applicable to this learning mechanism. In order to evaluate the search performance, we adopt APS learning mechanism to build the knowledge. APS learning builds a probability table for each neighbour and each object. When a query for certain object forwarding to a certain neighbour succeeds, the relative probability (or weight) of the entry for that neighbour and that object is increased. Otherwise, it is totally decreased. Since the flooding forwards messages to all of the neighbours, the learning mechanism is useless for it, and so we do not evaluate flooding here. For the MBFS with APS learning, the transmission probability p is set as 0.2, which is chosen to keep the same amount of query messages as the other search algorithms. The initial walker for APS.

CONCLUSIONS

In this Project, we presented an analytic framework to evaluate the latencies associated with file replication in P2P systems. The main contribution of the project is a Unstructured p2p to evaluate the file transfer delay at the peers. Our model accounts for the query search times and peer characteristics like the number of simultaneously allowed downloads at a peer, file popularity, number of copies of the file, etc.

REFERENCES

Bashed Abdullah, SantosHenrique, Validatin R Tam: Interface with CVD and the cardio stheth theory, Global Journal of Bio-science and cardio vascular disease,Vol.10, pp.68–73(2008).

Claraand Zannad F, Briancon S, Juilliere Y, Mertes PM, Villemot JP: Telephone reminders improve adolescent clinic attendance:a randomized controlled trial Pediatric Child Health care, pp.79–83(2008).

Christa Amrita Pal, Victor W, Pratim Lina Datta: Telemedicine Diffusion in a developing country for AIDS, IEEE Trans of Information.Tech,Vol.9, pp.59–65(2008).

Christopher Sangal A.K: Tele communication backbone for telemedicine, pp.61–67(2008).

Ebe Ralph Grove, Department of computer science: Internet based expert system, International Journal on Expert System, Vol.17, pp.129–135(2008).

Francis Stamper, Todd Maxwell JR: A software engineering approach to the design of a medical expert system, Proceedings of 4th Inter. Conference on S.E,Vol.15, pp.341–348(2008).

Elisa Solomon Scott D, Dobson Joanna, Pocock Stuart, Skali Hicham, McMurray John J V, Granger Christopher B,Yusuf Salim, Swedberg Karl, Young James B,Michelson Eric L, Pfeffer Marc: Influence of nonfatal hospitalization for heart failure on subsequent mortality in patients with chronic heart failure, pp.174–189(2009).

Francis Burton Committee to Update the 2001 Guidelines for the Evaluation and Management of Chronic Heart Failure and guidelines for the diagnosis and management of chronic heart failure and adult throat cancer diagnosis, pp.138–157(2009).

John Teslia, Raffaele Cappelli, Dario Maio: The Christina theory for the Diagnosis and Treatment of Chronic Heart Failure of the ESC, Guidelines for the diagnosis and management of chronic heart failure.1093/ eurheartj, pp.122–128(2009).

Joshuva Goldberg Lee R, Piette John D, Walsh Mary Norine, Frank Theodore A, Jaski Brian E, Smith Andrew L, Rodriguez Raymond, Mancini Donna M, Hopton Laurie A, Orav E John, Loh Evan: Randomized trial of a daily electronic home monitoring system in patients with advanced heart failure, pp.57–63(2009).

Rose Violet Konstanta D, Herzog R: Continuous Monitoring of Vital Constants and Diseases for Mobile Users - The Mobile Health Approach, IEEE EMBS, pp.82–83(2010).

Sharon Oliver N, Flores Mangas F: A Real-biosense Wearable System for Monitoring and Analyzing Physiological Signals, pp.75–91(2010).

Shaarish D Scherr, R Zweiker, A Kollmann, P Kastner, G Schreier and F M Fruhwald: Mobile phone-based surveillance of cardiac and AIDS patients at home, MJA 2005, Vol.9 pp.150–156(2010).

Taylor David A: Object Oriented Information Systems using Planning and Implementation, John wiley & sons.

Tom Lilley Jose, John Navein: The Telemedicine Tool Kit for expert Systems, John wiley & sons.

Tom Lilley Jose, Tsang K: A Medical Expert System using Object Oriented Framework, John wiley & sons.