



A Survey on Peer-to-Peer (P2P)

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Abstract: Today's world the internet is on boom. Its trending on a very high basis. Its a food for many organizations and applications in computer field. The communication is high over the internet. It's a good practice to have a secured communication over a peers. This paper attempts to survey on the peer-to-peer communication over a distributed networking. Its working and features are clearly explained.

Keywords: P2P, Peers, Distributed Network, Network.

I. INTRODUCTION

Peer-to-peer (P2P) is an application that is used for computable process or to connect two or more computers or other devices that distributes the architecture to separate jobs or labors between peers. They are privileged equally, strong participants in the application program. And also they are interconnected with several networks that are peer-to-peer connected.

A component part of resourcefulness is made by peer, such as power processing, disk storage or network bandwidth, which are directly available to other network participants, which doesn't need central coordination by stable hosts or servers. Peers are both consumers and even suppliers of resources, in contrast the consumption and supply of resources is divided in the traditional client-server model. Rising cooperative P2P systems are those which are going beyond the era of peers which does similar things when resources sharing, and are watching for different peers that can bring in specific capabilities and resources to a practical community thereby authorizing it to pursue greater tasks beyond those that can be successfully completed or brought to an end by individual peers, yet to all the peers it is advantageous.

In many application fields P2P system is utilized previously, the architecture was originally released in 1999 which was generalized by the file sharing system called Napster. In many areas of human interaction the concept has inspired new philosophies and structure. As an idea peer-to-peer refers to the democratic interpersonal networking, in such social contexts that is enabled by Internet technologies in general and has emerged throughout society.

II. HISTORICAL DEVELOPMENT

While P2P systems had been used previously in many application sharing application **Napster (Released originally in 1999)**. Millions of Internet users were allowed to connect peer-to-peer movement "directly, by forming groups and collaborating to become user-created

search engines, virtual file systems, and supercomputers". In earlier software systems and networking discussions the peer-to-peer was primary concept that is used for computable process visualized, stated in the first **Request for comments** as reaching back to a P2P that is near to the principles of World Wide Web vision of the **Tim Berners-Lee's** network in that it assumes that each utilizer of web would be a dynamic contributor and editor, where two machines connected to a Internet by creating and linking content to present day could send packets to each other security measures and other firewalls. This contrasts to the broadcasting-like is construction of the network as it is formulated throughout the years. ARPANET was a successful client-server network as a precursor to the Internet, where "every node participating could serve and request content".

However, **ARPANET** it lacked the ability to "supply any way for setting or substance-based routing beyond 'simple' address-based routing" and was not self organized. Therefore, as an early peer-to-peer architecture was established, distributed messaging system that is often likened: **USENET**. **USENET** is a system that enforces a model of control that was localized and was developed in 1979. Primary model is the client-server model that offers a newsgroup servers to a self-organizing approach communicate as peers to propagate from the user or client perspective. Throughout the entire group of **Usenet** news object the network with one another servers as **news servers**. In the sense that the core email-relaying network of **mail transfer agents** has the same consideration applies to **SMTP** email as a peer-to-peer character, there direct connections is strictly a client-server relationship and the periphery of **e-mail clients**. **Shawn Fanning** introduced application that is file-communion application and music application called Napster in may 1999, in which billion more people were on net. The origin of the peer-to-peer networks was Napster, and that we know them today, where "without having to obey any administrative authorities' restrictions participating users establish a



virtual network, entirely Independent from the physical network”.

design. (Examples of unstructured P2P protocols are Gnutella and Gossip).

III. ARCHITECTURE AND ITS FEATURES

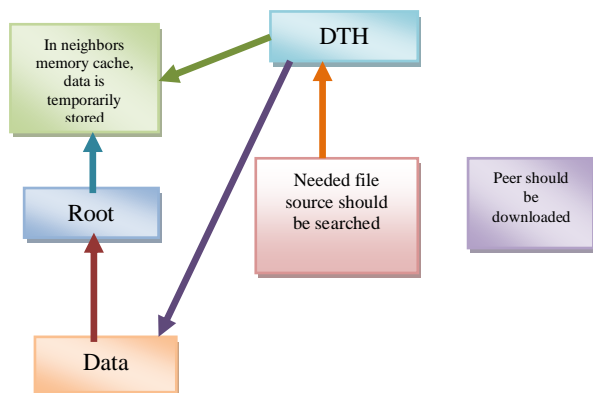


Fig 1: An architectural view of Peer-to-Peer model

A network which is peer-to-peer is simultaneously functioning on some “clients” as well as “server” to the different connecting point on the network that is intentional around the opinion of same peer connecting points at which several lines come together. Usually communication is done to and from a key host this model of network arrangement differs from the client-server model. The client and host programs are different in the File Transfer Protocol (FTP) service that uses client server model is a true example for file changing: Meanwhile the servers satisfy these requests and the clients initiate the transfer.

Expel and resource finding

Peer-to-peer networks generally implement on the peak of the physical configuration of a communication network in some form of practical overlay network, where the nodes in the overlayer of the physical network form a subset of nodes. With each other the application layer peers are capable to transmit directly, via the rational overlayer links (each of which represents to a path through which it provides a base to physical network) as data is still exchanged directly over the underlying TCP/IP network. The P2P system is independent from the physical network topology as the overlayers are usually utilized for peer finding and to provide index. We can also assort the networks as unorganized or organized (or even a hybrid between the two) based on how the nodes and resourcefulness that provide an index and are placed which are connected within the overlayer of the meshwork.

Networks that are unorganized

Unorganized peer-to-peer mesh are formed by nodes that indiscriminately form connections to each other and does not enforce a specific complex on the overlayer mesh by

To different regions of the overlay there is no structure throughout the world that enforce on them, because unorganized meshworks are simple to make and allot for decentralized optimizations. Unorganized meshworks are more strong in the face of advanced rating of “churn”—that is, when more numbers of peers are oftentimes connecting and going away from the network also because the role of all peers in the network is unvarying.

In particular, when the search query must be awash through the meshwork to find as many peers as feasible that share the data a peer wants to discover a wanted information in the piece of meshwork. The primary limitations of unstructured networks however also arise from this lack of structure. Awashing does not assure that explore interrogation will always be resolved and it causes a very high amount of signalize traffic in the net, uses more CPU/memory (by requiring every peer to process all search queries). Furthermore, there is no ensure that awash will discover a peer that has the carved the data since there is no coefficient relation between a peer and the capacity dealt by it. Any peer searching for popular content is likely to find the same thing and is possible to be accessible at respective peers. It is highly supposed that search will be successful, if a peer is shared by different peers searching for uncommon information.

Integrated networks

The overlayer is structured into a particular regional anatomy in structured peer-to-peer networks, and even if the resource is extremely rare the protocol ensures that any connecting point can expeditiously find the net for a file/source. A random variable of agreeable hashing is utilize to allot property of each file to a specific peer the most general type of organized P2P networks enforce a separated hash table (DHT). Any active connecting point can expeditiously recover the scope connected with a given key. This is capable for the peers to find for resourcefulness on the net using a hash table: that is, (key, value) pairs are laid in the DHT.

Hybrid models

Hybrid model is a mixture of client-server models and peer-to-peer models. To find each other which is no different hybrid model is used to have a primal host that helps peers. An example of a hybrid model is Spotify. The centralized functionality provided by a structured server/client network and there are a assortment of hybrid models, all of which make an exchange between the connection of all the points equality afforded by the pure peer-to-peer unorganized web. Either fine unorganized meshworks or fine organized meshworks because of certain functions, such as probing, do require a concentrated capable of serving well or currently, hybrid



models have better performance but benefit from the decentralized aggregation of nodes provided by unorganized networks.

Security and reliance

Unusual challenges from a computer security perspective are posed by peer to peer systems. P2P applications can contain vulnerabilities like any other form of software. What makes this particularly dangerous for P2P software that it act as an application to the serves as well as clients, meaning that **Rooting attacks**

Also, malicious users can perform a variety of "rooting attacks" attacks, or denial of service attacks through the meshwork the connecting lines play a role to rout out traffic. Examples of common rooting "incorrect routing updates" updates where malicious a malicious node, which places the new node in a partition of the network that is populated by other malicious nodes corrupt the routing tables of neighboring nodes by sending sending them false information, and "incorrect routing network partition" where new nodes are joining attacks include "incorrect lookup routing" routing whereby malicious nodes deliberately forward requests incorrectly or return false results, they bootstrap via nodes.

Corrupted data and malware

The preponderance of malevolent program varies between various peer-to-peer protocols. Studies analyzing the spread of malevolent program on P2P networks found, for example, only 3% of the content on open FT contained malevolent program and that 63% of the answered download requests on the lime wire network contained some form of malware. In both cases, the top three most joint types of malevolent reported for the majority of cases (99% in lime ware, and 65% in open FT). On P2P networks by changing files the are viruses that were tested for corrupted data can also be separated. Already being shared on the network as another study examines traffic on the kazaa meshwork found that 15% of the 500000 file sample taken was abscessed by one or more of the 365 different computers. Files infected with the RIAA virus were unusable afterwards and contained malicious code. For example, on the Fast Track network, that downloaded files (mostly MP3 files) the RIAA managed to introduce faked chunks. In order to deter illegal file sharing the RIAA is also known to have downloaded fake music and movies to P2P networks. Accordingly, security and file verification mechanisms of P2P networks of today have seen a tremendous enhancement. Even when large parts of the individual network have been replaced by counterfeit or nonfunctional hosts advanced hashing, clump verification and different encoding methods have made most networks able to tolerate to almost any type of attack.

Lively and scalable computer networks

Because the suburbanized nature of P2P networks removes the single point of failure that can be inherent in a client

server based system that increases lustiness. The likeliness of failure diminishes as nodes arrive and need of the system rises, the whole content of the system also rises. The whole network is not compromised or damaged, if one peer on the meshwork is failed to function. Clients share only their demands with the system, but not their resources in contrast in a typical client -server architecture. In this case, as more clients join the system, fewer resources are available to serve each client, and if the central host fails the whole net is taken down.

Separated storage and search

Attached to the topic of information backup, recovery, and availability there are both benefit and weakness in P2P networks. The system administrators are the only forces controlling the availability of files being shared in a centralized network, they simply have to remove it from their servers and requests from the government and other large forces along with leaving the users powerless in deciding what is distributed throughout the community. If the executive decide to no longer distribute a file and it will no longer be available to users this makes the whole system unprotected to threats.

A client should not have problem retrieving becloud content that is being shared on a stable centralized network. P2P networks, however, that node must be able to connect to the node requesting the data are more undependable in sharing less-traveled files because sharing files in a P2P network requires that at least one node in the network has the requested data. For example the RIAA, MPAA, and show biz to filter out copyrighted content as it has been pressured by YouTube They can have more constancy in the accessibility of the content they choose to host, although server-client networks are accessible to supervise and handle content accessibility .Users may delete or stop sharing data at any point because this requirement is once in a while is hard to meet. Common files, however, will be highly and easily distributed. Files on central networks are less popular than files on a P2P network; actually they have more constancy and accessibility.

To cause a failure in a centralized network a simple loss of connection between the server and clients is enough, but in order to cause a data sharing failure in P2P networks the connections between every node must be lost. For deciding what content is available in this sense, the group of users in a P2P network is completely responsible. As more people stop sharing them less-traveled files will finally vanish and become inaccessible to the users. The administrators are responsible for all data recuperation and backups, in a centralized system, while each node requires its own backup system in P2P systems. The governments are unable to delete or stop the sharing of content on P2P systems because of the lack of central dominance in P2P networks, forces such as the recording industry, RIAA and MPAA.



IV. APPLICATIONS

Content distribution network

As more users begin to access the content (especially with protocols such as Bit torrent that require users to share. Unlike client-server systems, the content serving capacity of peer-to-peer networks can actually raise, refer a performance measurement study). P2P networks because of its setup and running costs it is very small for the original content distributor. This property makes it one of the large benefits of using in P2P networks, as clients both use resources and provide resources.

Networks that are File-Sharing

Software business of issuing printed and distributor (Unix distribution, several games); via file sharing networks.

Gnutella and G2 are the popularized peer-to-peer technologies in which many peer-to-peer file sharing networks, such as Peer-to-peer content delivery networks work.

For improved performance such as correli Caches Peer-to-peer content services, e.g. caches

Multimedia

The PDTP and P2PTV protocols.

Spotify, use Peer casting for multicasting streams and a peer-to-peer network along with streaming servers to stream audio and video to their clients uses some proprietary multimedia applications.

Carrying on a project called Lion Share designed for facilitating file sharing among Pennsylvania State University, MIT and Simon Fraser University are educational institutions globally in which peer-to-peer file sharing is increased.

Various P2P applications

Real-time marketplaces that power Tradepal and M-commerce applications.

To browse the Internet anonymously I2P, an overlay network is used.

Web cache for LANs (based on IP multicasting) Dalesa, a peer-to-peer network.

Internet access with other devices using Wi-Fi or Bluetooth open Garden, connecting sharing application that shares the network.

For digital artists written in C++ infinite is an unlimited and encrypted peer to peer file sharing application.

To be independent from the Internet Netsukuku, a Wireless community network was designed.

For booking space for events, meetings and productions Peerspace is a peer-to-peer marketplace.

The PAST storage utility of the P-Grid and the CoopNet content distribution system, research like the Chord project, JXTA, and a peer-to-peer protocol is designed for the Java platform.

The United States military utilizes P2P networks and so the U.S. Department of Defense Anthony Tether, the director

of DARPA, evidence is deal with research on P2P networks as part of its current meshwork war strategy, in May 2003.

V. CONCLUSION

Network is mandatory for peer-to-peer communication. The communication for such tasks are done over distributed channels. The data might be leaked and affected till it reaches the destinations. Hence a step is taken care of file sharing over a network and hybrid models that help avoiding these.

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