# Peer to peer searches: an introduction

**Student Name: Guo-zhan Huang, Student No. 92753019, Speech: professor zhong-da Jing**

## Abstract

The main purpose of this writing is descripts the speech of the professor and learning how to transfer the technique for routing used.

## 1. Introduction

There have a lot of methods to search the files that our need it in the network, liking using a directory server to help us searching more and more easier. But how to indicate the file instantly and easy to download is more and more important. Based on this reason, the peer-to-peer is the one of solutions that how searching in the network in user friendly, efficiently and more broad. But this topic has a deadly problem in the aspect of ethics and law, copyright problem. Excepting the morality problem, the next problem is security that is the searching object in other computer whether inhibiting users to get information or allowing users to get it. To find the object in the network is sophisticated and emphasized on the network's properties, reliability and process responding time. In this speech the professor not only said about the basic and existed peer-to-peer environment and other popular peer-to-peer techniques we will describe fellow the sections.

## 2. Two popular techniques (applications) of peer-to-peer transferring, Napster and Gnutella

The Napster and Gnutella are two popular products. The first is stress on the centralized information processing. So there would exist a massive of problem when the center point node is broken, the other nodes couldn't be communication each together. The second product is for remedying the central point problem, using more friend servers to run together. One node to ask the other points whether the file existing in it or in their friend servers, is the second technique's method. Nevertheless, the technique existing a major problem when all of node asks other nodes at the same time, the network would be congestion. The centralized approach will suffer the central pint problem and the distributed approach will suffer the flooding problem, how we solve those together? The professor provides a method that using hash table and distributed key on each node.

## 3. Structured P-to-P architecture

The former techniques are unstructured P-to-P that wouldn't guarantee find the object. The structure P-to-P liking CAN and MIT chord will talk about in the next section. The main purpose of structure P-to-P is dividing the hash table into different nodes and maintaining those hash table.

## 4. Freenet , CAN and MIT chord

Freenet is using unstructured architecture, asking one node by history to searching the object.

CAN is the acronym of content addressable network. When a new point is join into the group. Dividing the original hash table from one to two and assigning the part of hash into point. The dividing method is shrinking the range of rectangle. This method letting each node's relation more canonical which liking a multi-tree search is more efficient than unstructured one. But there exist a boot-trap node, it maybe or not conquer the problem of central point problem depend the specifications of CAN. Another technique is MIT chord. It doesn't distribute part of hash table but distributed the hash key and stored in each peers, nodes. So the degree of center point problem will be decreased by dynamic update information by each node. It used a abelian group in algebra to format. The distribution of keys is using exponential increment generator to save the search time complexity.

## 5. Unstructured and structured

Structured P-to-P has management overhead to achieve reliability, availability, performance and access quality said by the professor. On the other hand, unstructured P-to-P is easy to manipulate by sacrificing the quality guarantee. So those kinds of network has main problem in the aspect of quality access.

## 6. Conclusion

No matter what kinds of P-to-P network, the property of quality and security rarely concerned include in the design phase. Often stress on decreasing the search time complexity. This kind of network is similar to the research in routing. Maybe using hash table in the routing could speed up the routing processing.

## 7. Reference

[1] chord project, http://www.pdos.lcs.mit.edu/chord/