

## **Approved Protocol For Reliability In Peer to Peer Networks**

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### **Abstract**

An important issue in peer-to-peer networks is discussed in this paper. peer-to-peer networks appeared as common method of sharing huge volume of data. These networks allow users to share their resources as completely distributed ones. Here by changing the “Chord” protocol’s structure among increasing the package` transmit speed we assure high reliability in package transmit. Simulation results showed function development of new protocol comparing to the base protocol.

**Key words** peer-to-peer networks, Chord protocol, routing, data transfer speed, reliability.

### **Introduction**

peer-to-peer networks benefit from a series of tasks in particular data sharing and cooperation of current resources in a distributed environment. These systems due to high scalability, possibility of increasing the number of system`s node consequently increasing the resources causes powerful systems establishment. In one hand because of direct connection between the nodes, though there is no extra cost for their connections.

As you know internet servers base on the users` usages are divided into two categories:

Webhosting networks are base on the central servers but there is no peer-to-peer network and users themselves connect each other via “Client” applications. The network`s ability depends on the total users` ability.

peer-to-peer network's purpose is data sharing and accepting the users' inquiries and research, return a pointer to the data. peer-to-peer network's feature resembles a graph in which vertexes correspond to the network's nodes and edges correspond to the nodes links.

Data transfer speed and reliability in the networks are prominent issues in the networks.

### **Chord protocol**

In this section we introduce Chord protocol. Chord system is an efficient distributed explorer service that is base on the Chard protocol. Main characteristic of Chord is simplicity, its capability and right function.

As keys are distributed uniformly in Chord system, thus receiving many applicants in a network doesn't disturb the network.

Because in chord system, uniform harmony keys are allocated to nodes, key "K" allocated to the first key, whereas its determiner either equals to K's determiner or comes after K's determiner in its environment . this knot is called K's substitute knot. If we represent the knots as 1 to  $2^n$  , next group is first clockwise one, in uniform harmony allows nodes to enter or to exit the network without any problem.

### **Package transmit process**

When a node needs to connect other nodes, it should research, and each nodes needs to connect with current substitute knot in the ring. To do so, it should continue inquiring until finding two nodes in which targeted keys' determiners locates there. To ensure research function, Chord protocol should assure that any pointer is a substitute for up dated node and pointes the current substitutes. In this point, node individually preserves a routing table,  $i^{\text{th}}$  entry of the table for node "N" is the first knot's entity and minimum determiner distance is  $2^{i-1}$  toward "n" on the ring.

The idea that is introduced for package's transmit is that destination and starting point's route may breaks down for many reasons as the routes data are stored in



the tables, if 1 to 2 direct route breaks down, an indirect route 1 → 2 → 3 is used. If a node transmits a package to its adjacent and receives no response, it observes a breakdown between themselves because its adjacent can either move due to the nodes movement or it hasn't received the requested package.

In this situation the node locates the sent data package in its local memory and transmits a package with two steps and changes the package's destination address to 2 and 3 thus the response package is sent by a node that destination's address is located in this package.

Practicality, this function needs adding the nodes name on the reply package. In this manner each propeller node propels identifies propellers nodes between itself and destination. Long distance between starting point and destination increases the number of propeller nodes and because their maintenance is costly this limitation can be established as: includes 2 or 3 next nodes which accepts more excess.

Another issue is necessary band extent to transfer the data as this helps transmitted data. As you know, when there is a package in starting point it will be transmitted by the neighbor nodes, it is transmitted from one neighbor to another one consequently it reaches destination. As the band's extent is necessary to transmit a package, neighbors transmit a package, before receiving the package it should express their band extent to next neighbor, this extent should be compared with needed extent, though when the node is suitable to transmit it is done.

## Simulation

The proposed methods about speed and repairing was evaluated by chord and suggested protocol.

The model of the web consist of 30 mobile nodes which are distributed randomly in a space of 1000\*1000

Square meters . the time of simulation is considered to be 250 seconds . chosen speed of simulation is 1 meter per second at minimum and 25 meter per second .

The table of simulation on the percentage of group reliability in comparision with the changes .

Packet delivery ratio in based protocol	Packet delivery ratio in proposed protocol
100	90
82	88
43	56
28	36
18	32
19	35
10	23

## Conclusion

Peer-to-peer networks are very important networks. This paper tries to develop the package transmit rate regarding the band extent before the package transmit is delayed to next time. Local repair mechanism was discussed in these networks to create reliability. And reliability was analyzed as a function of the number of starting point`s nodes comparing to the base protocol, Chord. Results showed the protocol function`s development, because when the nodes route breaks down joins the network quickly, consequently the network`s function quality gains relative development.

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