PEER-PEER FILE DISTRIBUTION SYSTEM

(Windows implementation)

By

Irfan Haider Jaffery (MCS - 244011-005)

Supervised by
Dr. MAHMOOD ANWAR KHAN

Department of Computer Science
Bahria Institute of Management and Computer Science
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A report has been submitted to the department of Computer Science,
Bahria Institute of Management and Computer Science, Islamabad
In partial fulfillment of requirement for the degree of MCS.

Department of Computer Science
Bahria Institute of Management and Computer Science
Bahria University, Islamabad

بسم الله الرحمن الرحيم

In the name of Allah Most Gracious Most Merciful

Dedicated

To

Our Parents

For all the support and guidance they have provided to us throughout our lives

&

To

Our Teachers

For their guidance in laying the framework for our careers

Certificate

We accept the work confirming to the requirement standard for the partial fulfillment of degree of MCS in the subject of Computer Science.

Head of Department
Prof. Fazal Wahab

Mahmud A Khan

Supervisor
M. A. Khan

Shaftab Ahmd

Internal Examiner
Mr. Shaftab Ahmed

S Ismail

External Examiner
Dr. Syed Ismail Shah

ABSTRACT

Peer-to-Peer file distribution system was developed for a private intra-network. The objective of this software was to efficiently allow access to company files over a LAN, as well as Internet, while at the same time reducing the load on the server. Initially, all company files were placed on a central server, and access to them was via the server only. With over a million files, and growing, this central access methodology greatly increased traffic to and from the server, and decreased efficiency.

The P2P software overcame this problem by allowing access to desired files from other nodes present on the network. When this software is run on a client computer, this client node connects to a **super node**, and registers it's IP with this node. Once connected, this software can be used to efficiently search the entire peer-to-peer network for any desired file. To further enhance efficiency, multithreading has also been implemented. Thus, a single file can be downloaded simultaneously from a number of different nodes. Also, before downloading each node is checked for bandwidth efficiency. A file is downloaded from a node only if the latter fulfills the bandwidth criteria. Same file can be present at different locations under different names. To overcome this problem, the concept of hash code has been introduced into this software. That is a unique 128-bit hash code is generated for each file on the basis of file contents. Thus, two files have the same contents, but different names, will have same hash codes. On the other hand, if the contents of the files are changed, their hash codes will also change.

The concept of fallback server is also introduced in this software. The name fallback server has been given to the central server that originally hosted all the files. The idea behind this is that incase a file cannot be found on the peer-to-peer network, the last resort will be to download it from the fallback server. This server will always hold a copy of all files present on the network.

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Irfan Haider Jaffery

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