PEER-PEER FILE DISTRIBUTION SYSTEM

(Windows implementation)

By

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Supervised by
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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.

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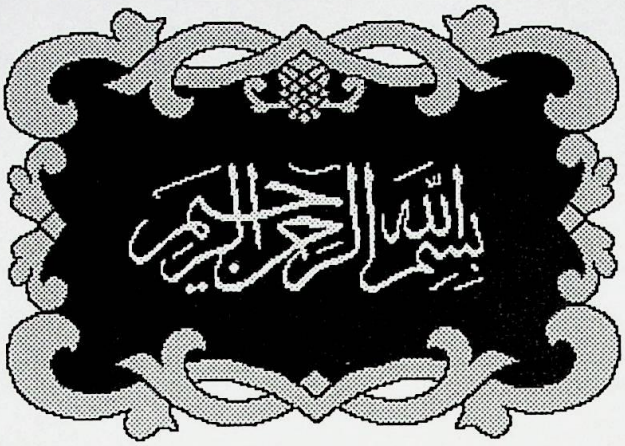
Bahria University, Islamabad



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.

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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.

ACKNOWLEDGEMENT

First and foremost, we would like to thank the **Almighty Allah** who helped us accomplished yet another task in our lives. And who has provided us with so many precious gifts that we don't usually find the time to thank him.

Secondly, thanks goes out to our parents who bore with us during our tough studies, and encouraged us while making this project.

We would also like to thank you supervisor, **Mr. Mahmood Anwar Khan**, for his guidance, help and co-operation during the course of this project.

Irfan Haider Jaffery

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