

Virtual File System Mounting & Searching With Network JVM For LAN

Nikita Kamble, Vaishnavi Patil, Shweta Desai, Dhanashri Kasar, Mrunali Patil

Abstract: Computer technology has rapidly grown over past decades. Most of this can be attributed to the Internet as many computers now have a need to be networked together to establish an online connection. A local area network is a group of computers and associated devices that share a common communication line or wireless link to the service. Typically, a LAN compasses computers and peripherals connected to a secure server within a small geographic area such as an office building or home computer and other mobile devices that share resources such as printer or network storage. A LAN is contrasted in principle to a wide area network(WAN)which covers a larger geographic distance and may involve leased telecom circuits while the media for LANs are locally managed. Ethernet are twisted pair cabling & Wi-Fi are the two most common transmission technologies in use for LAN. The rise of virtualization has fueled the development of virtual LAN(WLAN)which allows network administrator to logically group network nodes & partition their networks without the need for major infrastructure changes. In some situations, a wireless LAN or Wi-Fi maybe preferable to a wired LAN because of its flexibility & cost. Companies are asserting WLANs as a replacement for their wired infrastructure as the number of smart phones, tablets & other mobile devices proliferates.

Index Terms: Administrator, Customization, Histogram, JVM, Mounting, Network, Virtualization.

1 INTRODUCTION

In large organizations, computers are connected through LAN. Huge number of files are generated and accessed every day. The users need to switch from one machine to another. Therefore they may require file located on any computer connected in LAN. This overhead of searching files on every machine can be solved by the software. For searching three options are provided in the software –Search by name, content based search and image search. The space available on the disk for storage is limited. Hence if a machine is running out of space while downloading a huge file, then the user can utilize the virtual file mounting option provided in the software. With this facility, the user can use the storage space of any machine connected in LAN. It may happen that only some machines in the LAN may have JAVA installed on them and remaining may not have. The unaware of this may randomly work on any machine. Later if he finds that JAVA is not available on the current node then he can just avail the virtual JVM facility provided in the software. With this facility, the user can redirect his code to the machine which has JAVA installed on it and execute the code virtually

2 LITERATURE SURVEY

From literature survey we came to various research papers that provides remote access to computers connected in LAN. We came across a tool named 'Lanshark' for searching files 'D-LAN' for sharing files in LAN .Till now there are various systems for monitoring LAN from remote place, searching in LAN, etc.

A. Lanshark

Lanshark is free file sharing tool for sharing files in LANs. It allows you to efficiently share the files with the other users in the same network. It automatically detects other lanshark users in the same network and lets you browse through their shares. It has very fast search function that allows you to search through all the shares in the whole network in just a few seconds.

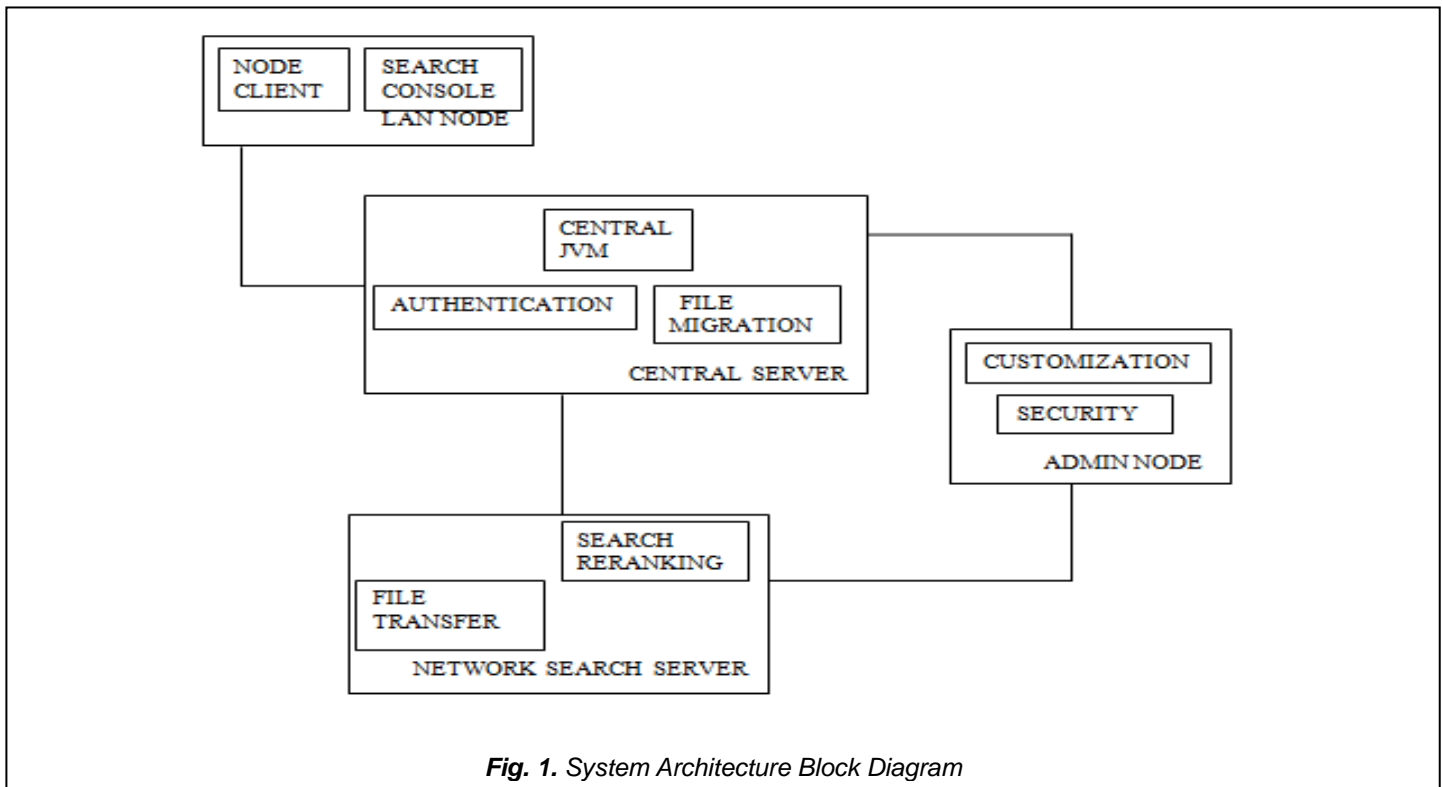
B. D-LAN

This tool allows easy exchange of large amount of data. In local area network environment. After you launch D-LAN, you will see other people and their sharing automatically without special configuration.

3 SYSTEM ARCHITECTURE

The proposed system depicts client server architecture where each node acts as a client and server maintains a database containing information of node like free space, availability of JVM, customization. . The central server continuously monitors the nodes for updates. The network search server works parallel with central server and provides optimization of results. First of all the user has to login with userid and password. While downloading a file the central server provides a list of nodes with available space. The user can select the node as per requirement. Similarly for virtual execution of java files, the user has choice to send the query to one of the nodes from the list. Whenever a particular file is searched, the search results are reranked using indexing algorithm provided by the network search server. The customization facility, aids the users to keep his private files safe and hidden over the network.

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3.1 MODULES IN THE SYSTEM

3.1.1 LAN node

Node Client: This module will provide a client application which will be active on every computer. A user interface will be provided to perform operations like authentication, data fetching, etc. The node will always be connected to the central server. It works on java socket programming input. This connectivity information is sent to the server with specific port number to perform communication via java IO package.

Search console: In this module the user has to enter a query. The query will be sent to the server and then results will be displayed after query processing. This module will be designed using java AWT components for designing a user interface.

3.1.2 Central Server

This module will provide an application which will be active on every node to perform network connectivity and provide services. It also performs user management to provide authentication. It is an active server socket with port number 8099 to let the node client to connect and further authentication with the help of MySQL database.

3.1.3 Network Search Server

This module consists of a server which will provide service to console to search files for input query received from console and return the results. This module also performs indexing and user to file mapping for enhanced search results. It uses indexing algorithm to rerank the results.

3.1.4 Admin Node

This module will help to provide control over the data drives or folders to manager level authorities. Search security will be provided at user level. User interface for customization and search security will be provided.

4 SOFTWARE DEVELOPMENT MODEL

We are using the V-model for our software. During the software development, each phase is completed before the next phase begins. Testing of the phase is planned in parallel with the corresponding phase of development. In our software, proactive defect tracking is done which avoids downwards flow of defects.

5 BACKGROUND TECHNOLOGIES

5.1 Virtualization

Network Functions Virtualization aims to transform the way that network operators architect networks by evolving standard IT virtualization technology to consolidate many network equipment types onto industry standard high volume servers, switches and storage, which could be located in Data centers, Network Nodes and in the end user premises. It involves the implementation of network functions in software that can run on a range of industry standard server hardware, and that can be moved to, or instantiated in, various locations in the network as required, without the need for installation of new equipment. Network Functions Virtualization can also be used to provide an efficient production environment which can commonly be used by different applications, users and tenants, thus supporting the coexistence of several versions and variants of a network service.

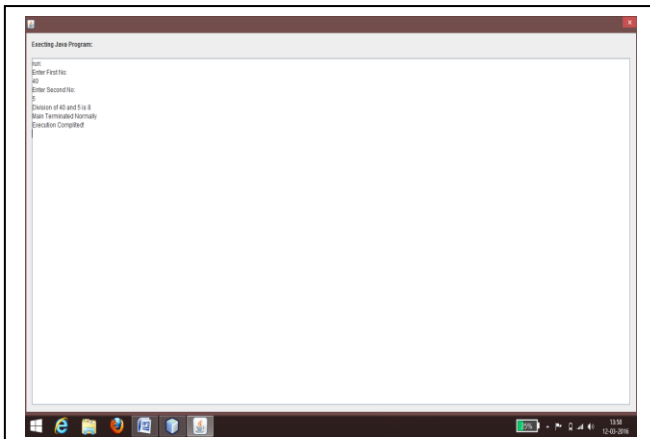


Fig. 6 Virtual execution of java program

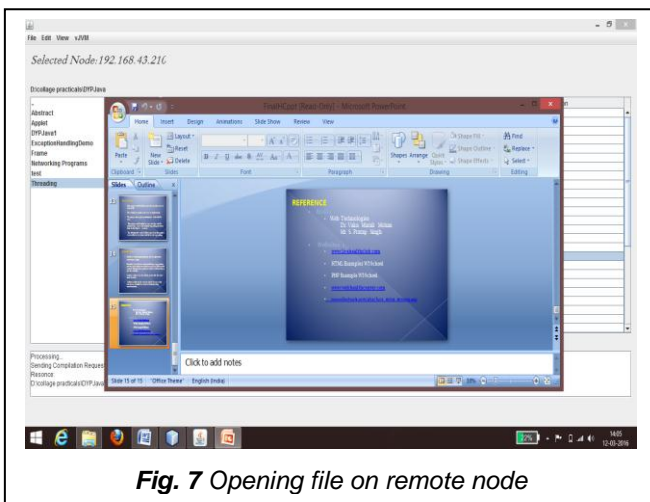


Fig. 7 Opening file on remote node

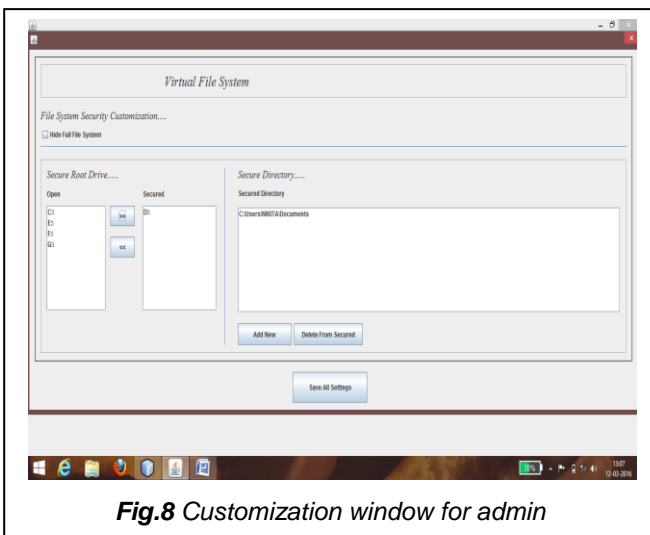


Fig.8 Customization window for admin

7 EXPERIMENTAL SETUP

7.1 Hardware Interfaces

Router/Switch/Hub
 Network Adapter – NIC
 Network Medium – Ethernet cable
 Cable Connectors – RJ45

7.2 Software Interfaces

We have used Netbeans IDE 7.0 Beta as development tool. Netbeans is an *Integrated Development Environment* (IDE for short). It has,

An editor — For writing application code
 A GUI editor — UI of application's screens
 A compiler — For building applications from code

8 END SECTIONS

8.1 ACKNOWLEDGMENT

We offer our sincere and hearty thanks with the deep sense of gratitude to our **Head of Dept., Prof. G. A. Patil** for his valuable directions and guidance to our paper. We express our deep gratitude to **Asst. Prof S. B. Karale** for his valuable suggestions and modifications which helped us to solve multiple queries.

8.2 CONCLUSION

We had done detailed survey on existing systems. From that survey we conclude that existing systems are does not satisfy user's needs completely. Thus we developed a new software system in networking environment because it provides easy user interface. The virtual file system mounting and searching with network JVM for LAN provides a centralized access to all nodes in the LAN. This software can be further implemented in distributed environment.

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