MindTree Remote Final Year Project

USB OVER IP

USB MASS STORAGE DEVICE SHARING OVER A TCP/ IP NETWORK CONNECTION

Team Code : **MEC2**

Program Manager :

Ms. Visaka K.

Technical Guide :

Mr. Pramod Sivadas

Team Members :

CIJO GEORGE

JUSTUS AYPE JOSE

SHILPA SUDHAKARAN

College :

MODEL ENGINEERING COLLEGE
COCHIN, KERALA.

Guide at College : **Mr.** Bijumon T

Problem Statement :

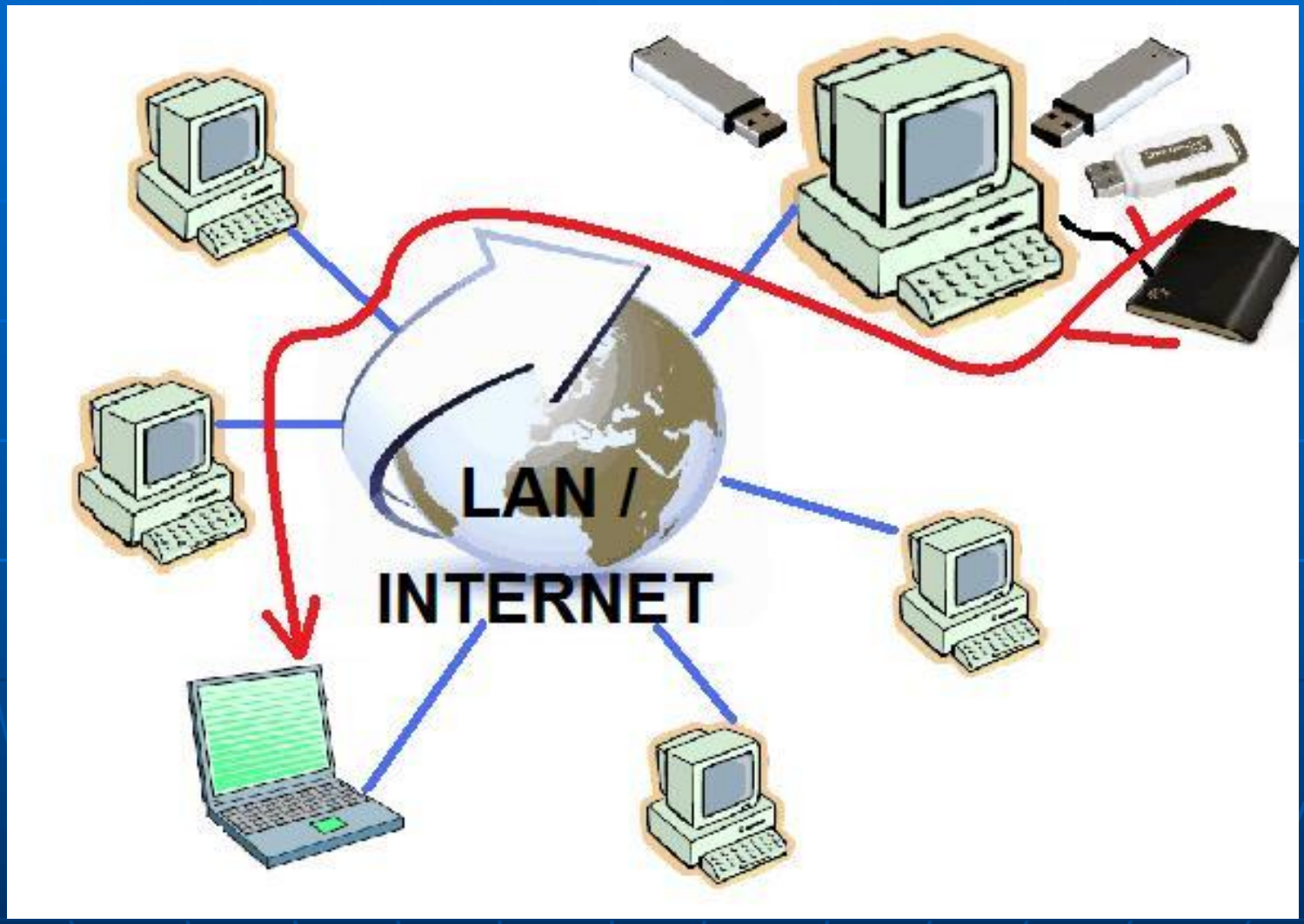
USB as a technology can be used as an alternative to PCI to connect peripheral components to a computer. Plug-and-Play installation and easy user diagnostics make USB connectivity a viable source of I/O expansion in both end user and business applications.

The project aims at opening up USB mass storage devices to network/LAN and mould the network as I/O channel. This is to enable sharing of USB mass storage devices over the network in such a way that each computer in the network can access the devices as if they are connected directly to them.

Application Concept :

- Develop the server which shall make the USB mass storage devices public
- Server performs operations on USB mass storage device.
- A client needs to be generated to allow the read/write operation on the USB storage device.
- One PC(Server) can serve as the host for multiple USB mass storage devices.
- Multiple client PCs can access the USB mass storage devices from the server host PC through the network.

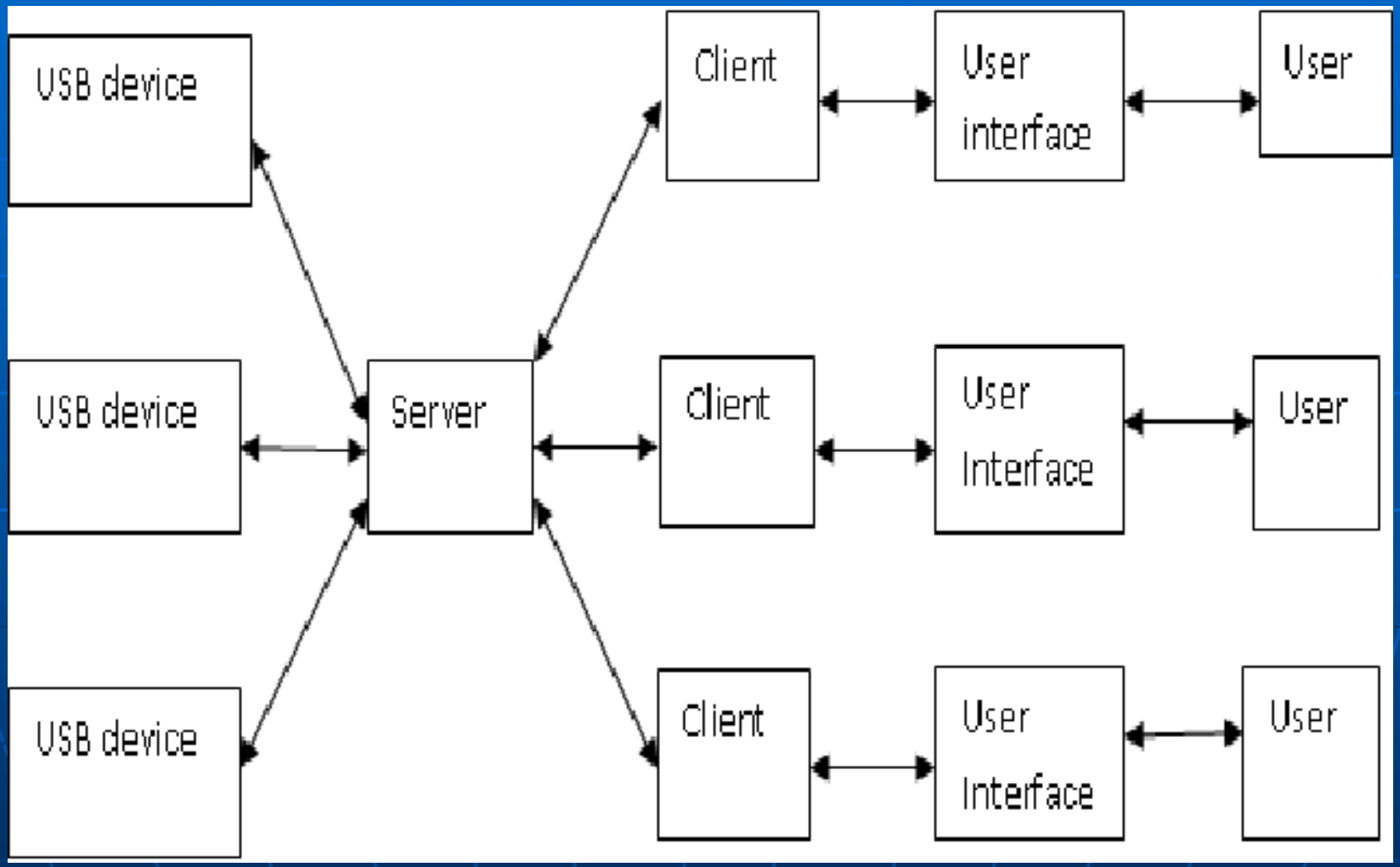
Concept Illustration :



MODULES :

- NETWORK
- CLIENT
- SERVER

Architectural Design :



NETWORK MODULE :

- 1. Establishes connection between server and client.
- 2. Listens to a particular port for messages from client.
- 3. Sends and receives messages from client and server.

CLIENT MODULE :

- Sends a request to networking module to establish a connection with the server.
- Receives the list of USB devices connected to the server.
- Client selects a device from the list and sends to the networking module.
- Takes request from a user for an operation to be done on USB device and sends to networking module.
- Receives acknowledgement from server regarding the operations performed.

SERVER MODULE :

- Accepts connection request from the client.
- Sends the list of USB mass storage devices connected to it to the client through the network.
- Receives requests from the client.
- Process the request and perform the particular operation.
- Sends acknowledgement to the client through the network.

User Commands at the Client:

Client → Network → Server

- help : to open the help file showing the commands and their usage. It opens the file readme.txt and displays its contents.
- list : to list the contents of the USB device.
- freespace : to the free space in Megabytes.

User Commands at the Client:

- makedir <directory name> : to make a directory in the USB.
- rmv <directory name of file name> : to remove a file or directory from the USB.
- rename “<old directory or file name>” “<new dir or file name>” : to rename the old file or directory to the new name specified.
- chdir <directory name> : to change the working directory to the one specified.

User Commands at the Client:

cpfile “<source>” “<destination>” : to copy file from source to destination

The different options are:

- cpfile “<s:filename>” “<c:path>”

  Copies file from USB mass storage device in server to the client system.

- cpfile “c:path” “s:path”

  Copies file from the client system to the USB mass storage device in server.

User Commands at the Client:

cpdir “<source>” “<destination>” : to copy directory from source to destination

The different options are:

- cpdir “<s:filename>” “<c:path>”

  Copies directory from USB mass storage device in server to the client system.

- cpdir “<c:path>”

  Copies directory from the client system to the USB mass storage device in server.

User Commands at the Client:

mvfile “<source>” “<destination>” : to move file from source to destination

The different options are:

- mvfile “<s:filename>” “<c:path>”

  Moves file from USB mass storage device in server to the client system.

- mvfile “<c:path>”

  Moves file from the client system to the USB mass storage device in server.

User Commands at the Client:

mvdir “<source>” “<destination>” : to move directory from source to destination

The different options are:

- mvdir “<s:filename>” “<c:path>”

  Moves directory from USB mass storage device in server to the client system.

- mvdir “<c:path>”

  Moves file from the client system to the USB mass storage device in server.

User Commands at the Client:

- quit

  quits the execution and goes back to the bash prompt

Advantages :

- Exclusive access to USB mass storage devices alone.
- Simple Command line options for the operation.
- Requests from multiple clients can be met concurrently.
- Flexible design allows scope for future improvement and development.

Limitations :

- Support for only GNU/Linux operating system.
- No client system authentication has been implemented.
- Copy and Move functions are only for directories and regular files.

Future Improvements :

- Security Concerns have to be met by implementing authentication of clients.
- A more user friendly GUI can be developed instead of the command line interface.
- Sharing of multiple USB devices like printers, scanners, webcams, etc can be implemented similarly.

QUESTIONS…???

....THANK....

....YOU....