University of Dhaka

Department of Computer Science and Engineering

CSE-3111 : Computer Networking Lab

Project Title: ShareNet

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1 Objectives

The main objective of the project is to develop an application that facilitates seamless file sharing over a TCP/IP network. This file sharing application demonstrate the fundamental concepts of computer networking. This application aims to provide users with a reliable and efficient platform for exchanging files across interconnected devices. This project will showcase numerous networking concepts such as socket programming, TCP/IP protocol, client-server architecture and packet routing techniques.

2 Motivation

The need for effective file sharing solutions is of paramount importance in today's connected world. Users are always looking for secure ways of exchanging files over the networks, whether they want to work in a shared workspace, share multimedia content or move large documents. By offering a flexible Python application that uses the power of TCP and IP connections, ShareNet addresses this need.
This project aims to help students grasp computer networking concepts better by exploring them in more depth. It accomplishes this by offering a hands-on tool that students can actively engage with and utilize.

3 Technology to be used

This desktop application will be created using a range of advanced programming and networking tools.

1. **Programming Language:** Pyhton
2. **Libraries:**
    - **vidstream:** This library is used for streaming video, audio, and screen sharing over a network. It facilitates real-time communication between devices.
    - **socket:** It enables the creation of sockets, which serve as endpoints for sending and receiving data over a network.
    - **threading:** It is used to handle multiple connections simultaneously, allowing the program to perform tasks concurrently and efficiently.

3. **IDE:** VS Code
4. **UI/UX:** tkinter

4 Features to be built

This file sharing application will have the following features:

1. File sharing
2. Text, audio, video file sharing
3. Real time file sharing
4. Video and audio call
5. File sharing over any IP address

5 Networking concepts to be used

The following networking concepts will be used in the development of the application:

1. Socket programming
2. TCP/IP protocols
3. IP addressing and routing
4. Packet switching and forwarding

6 Prospective application of the project

1. ShareNet can be used by students and educators to collaborate on projects, share research papers, and exchange study materials.
2. ShareNet can be used by individuals to share photos, videos, and other multimedia content with friends and family members.
3. ShareNet can serve as a platform for sharing educational resources such as textbooks, lecture notes, and study guides among students and educators.

4. ShareNet can be used by researchers and scientists to share data, research papers, and other research-related files with collaborators and peers.

5. ShareNet can be used to communicate with others through audio and video call.

These prospective applications demonstrate the versatility and usefulness of ShareNet across various domains and industries, making it a valuable tool for facilitating file sharing and collaboration in different contexts.
Moreover, the app can be further developed and customized to serve as a communication tool for small organizations or businesses that operate on a local network.