Lab 2 Report

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Summary

The purpose of this lab is to edit a basic client-side communication program to receive UDP data packets and process the data. By processing the data, we should receive a short poem to be saved to the local machine.

Key Words

UDP – User Datagram Protocol is used to transfer data over a network. UDP sends data to a location and does not require a connection handshake in order to operate. UDP is considered to be unreliable for critical data transfer operations.

Socket – An endpoint for sending or receiving data within a network.

1 Introduction

UDP allows a user to quickly send information to a destination regardless of whether or not that destination is ready or willing to receive the data.

In order to test a UDP connection, we had to modify code provided in order to handle the data that was being transferred from titan.ece.villanova.edu web server. In order to do this, we had to design our program around the standard packets that were being sent with the payload.

Once the program was written and tested, the user receives a short poem to read and interpret.

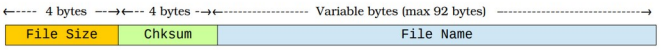
This report is made up of the following sections:

Section 2 – Packet Structure and Functionality
Section 3 – Interpretation of the Poem

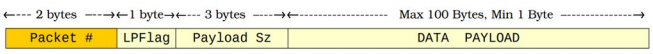
2 Packet Structure and Functionality

Upon requesting information from the server, there are two different types of packets that will be sent. There is the starting packet and the general formatted packet. Below is the breakdown of each of the packet types:

Start Packet – At the beginning of each transfer, there is a start packet. The packet contains information about the total file size, the check sum, and the file name, or in this case the name of the poem.



General Packet – The second packet and each packet after contains information about the packet number, the last packet flag, the size of the data payload, and the payload itself. The last packet flag allows the local host to determine whether or not to keep looking for more packets.



By the end of creating the program, it does everything that it is required to do in the lab. The lab notes do mention that the programmer should be aware of being able to process packets that arrive out of order. Although the functionality is not written, it is very easy to access the packet number and then insert it into the buffer at a specific shifted location.

3 Interpretation of the Poem

After requesting the poem from the web server, it returned “The Road Not Taken” by Robert Frost. With this file, I was able to create my own short interpretation of the poem.

The traveler is presented with a decision to make, whether to choose the right road or the left road. Both of the roads are identical and well traveled. After thinking about his choices, he decides to take neither road and treks of down a path of which is covered in leaves. In the end, he describes that he would not change his decision and that he was happy he took the “one less traveled.”

The message of the poem is a simple one. When faced with a decision, maybe one should think about the choices that are not as straightforward or obvious. Sometimes, these hidden choices end up being the best.

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4 References

[1]
https://searchnetworking.techtarget.com/definition/UDP-User-Datagram-Protocol

[2] Lab 2 instructions for packet diagrams