Comp9331 Assignment Report

z5146286/Pei Zhang

1. Development Environment

Running by python3

1. Script

xterm -hold -title "Peer 1" -e "python3 cdht.py 1 3 4 300 0.3" &

xterm -hold -title "Peer 3" -e "python3 cdht.py 3 4 5 300 0.3" &

xterm -hold -title "Peer 4" -e "python3 cdht.py 4 5 8 300 0.3" &

xterm -hold -title "Peer 5" -e "python3 cdht.py 5 8 10 300 0.3" &

xterm -hold -title "Peer 8" -e "python3 cdht.py 8 10 12 300 0.3" &

xterm -hold -title "Peer 10" -e "python3 cdht.py 10 12 15 300 0.3" &

xterm -hold -title "Peer 12" -e "python3 cdht.py 12 15 1 300 0.3" &

xterm -hold -title "Peer 15" -e "python3 cdht.py 15 1 3 300 0.3" &

Argument: Peer id, 1st successor, 2nd successor, Maximum Segment Size (MSS), drop rate

1. Design

This program creates a ‘Class’ named Peer. Peer stores the information of peer, such as, peer ID, predecessor, 1st successor, 2nd successor, MSS, drop rate, program start time.



The program has five Threads:

Input Thread: Listening to command input (quit or request).

Ping Thread: Sending ping to 1st successor and 2nd successor.

UDP Thread: Listening to UDP connection (Ping request and file transmit).

TCP Thread: Listening to TCP connection (Peer lost, peer departure, file response and request).

Each of Thread will process their corresponding function.

1. Message

* Ping message :

Ping request: pingreq, {requester}, {flag}, {seq}

Flag have two value 1 and 2, 1 means that ping to 1st successor, 2 means that ping to 2nd successor.

Ping response: pingres, {responser}, {seq}

* File message:

File request: filereq, {requesterID}, {file hash}, {file value}

File response: fileres, {responserID},{file hash}, {file value}

File transfer : {status}, {seq}, {length of Data}, { file data}

When status is “s”, it means file transfer is sending. When status is “f”, it means file transfer finished.

* Peer quit:

quit, {PeerID},{succ1ID}, {succ2ID}

* Peer Lost:

Lostpeer,{PeeID}

1. demo

<https://youtu.be/_hYMuHiwAIw>

( I uploaded video on lab computer. I can open URL on my computer, but cannot open on lab computer)