Snowcast

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Introduction

Snowcast is an independent project that I implemented for fun. It basically has three C-programs to simulate a simple Internet Radio Station; it supports multiple clients, multiple stations, and multiple songs within each station. I heavily used POSIX's thread and UNIX socket API in this project.

"snowcast_server" serves as the server of the Radio Station;"snowcast_listener" serves as the stream listener on the client side; "snowcast_control" serves as the control on the client side.

snowcast_server handles most of the requests from clients. snowcast_server supports multiple radio stations and also has the ability to modify the stations. snowcast_server is responsible for sending the song to listeners using datagram (UDP) and receiving connection the response of those requests from clients using TCP/IP protocol. On its side, it uses a linked list to store the stations and another linked list to store the song in each station. It also heavily uses mutex to protect the station from changing by two threads simultaneously.

snowcast_listner is a UDP client responsible for receiving UDP datagram from server. It redirects the song data to mpg123 in order to listen the song. The user must run this program to listen to the actual song data.

snowcast_client is the client program used for connecting with server and sending control request to server.

Code info

3000 – 4000 lines of C code

Files

All of the files are my own work.

Execution

To run the server: ./snowcast_server [tcp_port] [station path/song path] ...

To run the client: ./snowcast_control [server_name/server_ip] [tcp_port] [udp_port]

To run the listner: ./snowcast_listner [udp_port]

Thank you for reading my code.