Project 3
(contd. :)
cse461
Motivation

• Friend has an iTunes library that I would like to access, but unless we are on the same network, I can’t “see” her shares.
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Set up

- In this project, you will explore a **centralized** solution to this problem.
One small problem..

- iTunes uses mDNS (IP Multicast) for discovery and a TCP connection to exchange play lists
- mDNS is non-trivial and you have little time to learn to rewrite mDNS packets and tunnel TCP connections
- Instead, we (you) will use our (your) own application!
BChat : Broadcast Chat

- Chat messages are sent via subnet broadcast
- All participants see all messages
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Tunneling BChat

- Chat messages are tunneled transparently via the server.
BChat Client protocol

- **Send** subnet broadcast UDP msgs on port 52367
- **Receive** subnet broadcast msgs on port 52368
- UDP payload should contain a string of format: “name: message”
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Tunneling protocol

- Server and client exchange the same message type as in Step 1

```c
typedef struct msg {
    uint32_t len;
    void* payload;
} msg_t;
```
Re-broadcasting Strategy

- Packets received from the Tunnel server by the Tunnel client need to be re-broadcast on the local network:

1. Translate src IP to router’s IP
2. Translate dst IP to local subnet bcast IP
3. Translate UDP src, and dst ports accordingly
4. Send translated packet on a raw socket
Requirements

• Tunneling client that interoperates with the tunneling server

• BChat client that interoperates with other BChat clients, and tunneling clients

• A BChat client interface that allows one to send new chat messages, and to see chat messages (e.g. stdin/stdout, curses, web..)
Extra Credit

- Use multicast instead of subnet broadcast for BChat messages.
- Use your web-server from Project 2 to snoop, and show a log of all chat messages via a browser.
- Use your web-server to provide a web interface to the BChat client.
- Besides snooping, add a way to inject chat messages from the web-server on the router (the local subnet has to see these messages) via a web-interface.
- Create a new application that uses the tunneling protocol in a novel manner.
Due Date

- Everything due on Friday, 12/5 at 11:59 PM (last day of school)
- Include all source code, along with compilation/usage instructions