

## CVN: A Chat Application

### Part 0:

Language: Java

Platform: Linux

### Summary:

When coordinating work or social interaction across geographic locations, it can be difficult to communicate effectively. Real-time chat closes this gap, enabling users to have a near in-person experience without leaving their location. Remote communication can also enable people with mobility issues to engage further in work and social settings.

For our project, we are going to be building a video chat application for linux desktop. Our project will support at least two people video chatting with each other and offer text communication options as well. We do not plan on having a central server that proxies connections. We will also require a user to either be on the same network as other users or know the meeting host's ip address ahead of time. We plan to keep chat logs in a sqlite database on each client's computer so that the clients can refer to past communication after the chat ends. We will follow in the footsteps of services that stream video and use UDP network packets, either leveraging an api available online or by implementing our own.

Our code will be written in Java which likely means it will be able to support users on other operating systems as well. Some preliminary research has pointed us toward several Webcam capturing APIs (namely, sarxos/webcam-capture) which claims to support the major operating systems and apart from that, most of our code should be operating system independent.

### Technologies<sup>1</sup>:

Unit Test Framework: JUnit

Static Analysis Tool: PMD

Database: Sqlite

Version Control: Github

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<sup>1</sup> Subject to change.

## User Stories:

1. As someone who often communicates remotely  
I would like to have chat services  
so I can communicate with my friends when I do not have a webcam

~my conditions of satisfaction are~

- I can send and receive one or more plain text messages
  - My friend can respond to the message, building a history of messages
  - I can send messages to anyone who I like
  - I can't send messages to someone I don't know
  - I can send and receive as many messages as I like
  - I can't send messages to numbers that don't exist, and if I do I will be told it is unsupported
  - I can see the time that the message was sent
  - The messages appear in chronological order
  - I can view messages previously sent and received
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2. As someone who multitasks often  
I want to have chat messages read aloud to me  
so that I do not miss any of them

~my conditions of satisfaction are~

- A message with no content is not read
  - A long message is read in its entirety
  - Punctuation marks do not impact the voice speaking the text
  - Older messages may be read out loud, not just the current message
  - I can adjust the volume of the speaker
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3. As a visually-oriented person  
I want to see a picture of my friend when I chat with them online  
because I enjoy seeing my friends faces

~my conditions of satisfaction are~

- I can select a digital picture that is associated with me
- The picture can be of anything I like (acceptable size restraints)
- If I don't choose a picture, a picture is chosen for me

- This picture is the one my friends see when they talk to me
  - People that I don't know can't see this picture
  - I can change this picture whenever I like
  - When I change a picture, my friends see the new picture
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4. As a socially polite person  
I want to see and hear my friends when I talk to them online  
so that I don't commit a faux pas

~my conditions of satisfaction are~

- My friends' faces move when I speak to them online (vice versa)
  - I can see my friends faces clear enough to make out expressions
  - When I am done talking, the video turns off
  - I can talk to at least one person
  - I can't talk to no one
  - If I talk very quickly, my friends can still hear me
  - Background noise does not overpower my talking
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5. As someone who recently lost their voice  
I want to be able to continue communicating with my friends during video calls  
so that they hear me even when I can't talk

~my conditions of satisfaction are~

- I can send messages to my friends online
  - I can read messages from my friends online
  - My messages and my friends' messages are easy to find
  - My text messages would be audible to my friends if they wish
  - No one can delete my messages
  - I can delete my own messages
  - My messages are available to see during the entire video call
  - My messages are available in-between video calls (persistent)
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## User Story Wishlist:

- As someone who works remote often, I would like my video chat sessions to feel responsive and for framerate to be high. (Frame delta compression)