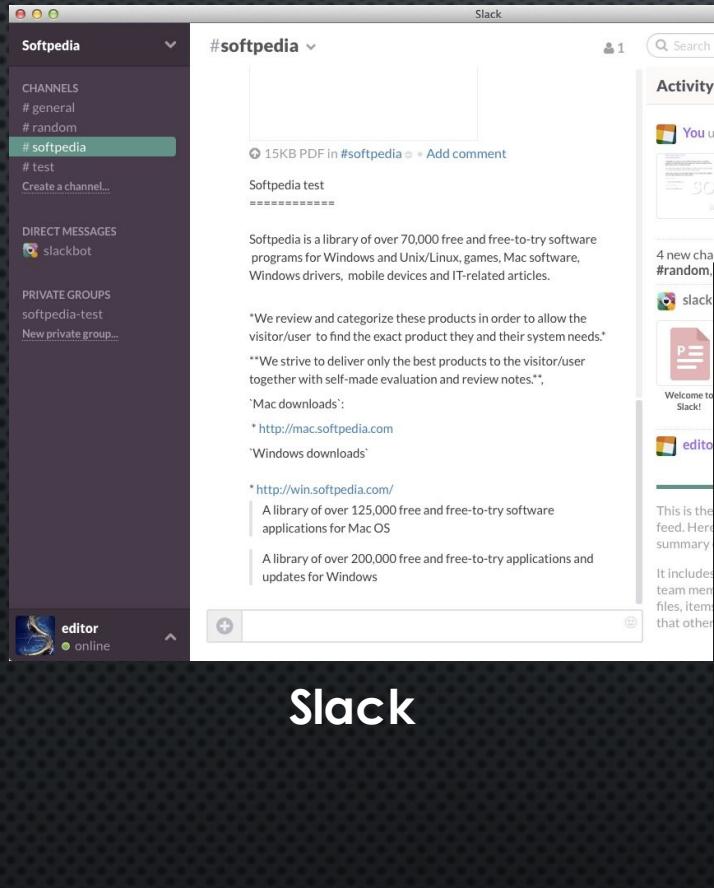




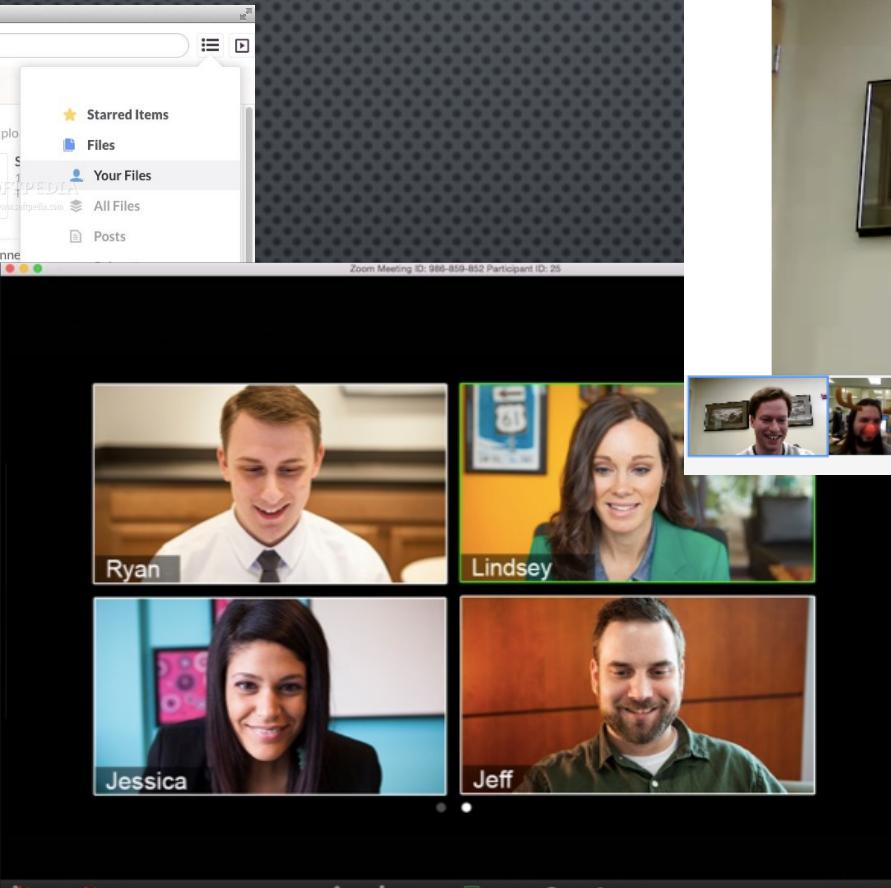
*The Cloud Classroom For Online Course*

CNL Final Project  
Team02

# CHATROOM



Slack



Zoom



Google Hangout

A WHITEBOARD ON CLASS ?



Cloudsera

http://www.cloudsera.com

CLOUD SERA

search

Whiteboard

Your ID: StudentA

Chatroom

18:17 Teacher: Hi !  
18:17 StudentA: Hi !

Send

教授Comment: 多人共筆、倒出canvas功能

The screenshot shows a web-based whiteboard interface. On the left, a large whiteboard area contains a prominent purple scribble. To the right of the whiteboard is a 'Chatroom' window displaying a message exchange between a 'Teacher' and 'StudentA'. The Teacher says 'Hi !' at 18:17, and StudentA replies 'Hi !' at 18:17. At the bottom, there is a toolbar with color swatches (red, orange, yellow, green, blue, white, purple, brown, grey, black), drawing tools (pencil, eraser, selection), and a refresh icon.

Real-time  
Video

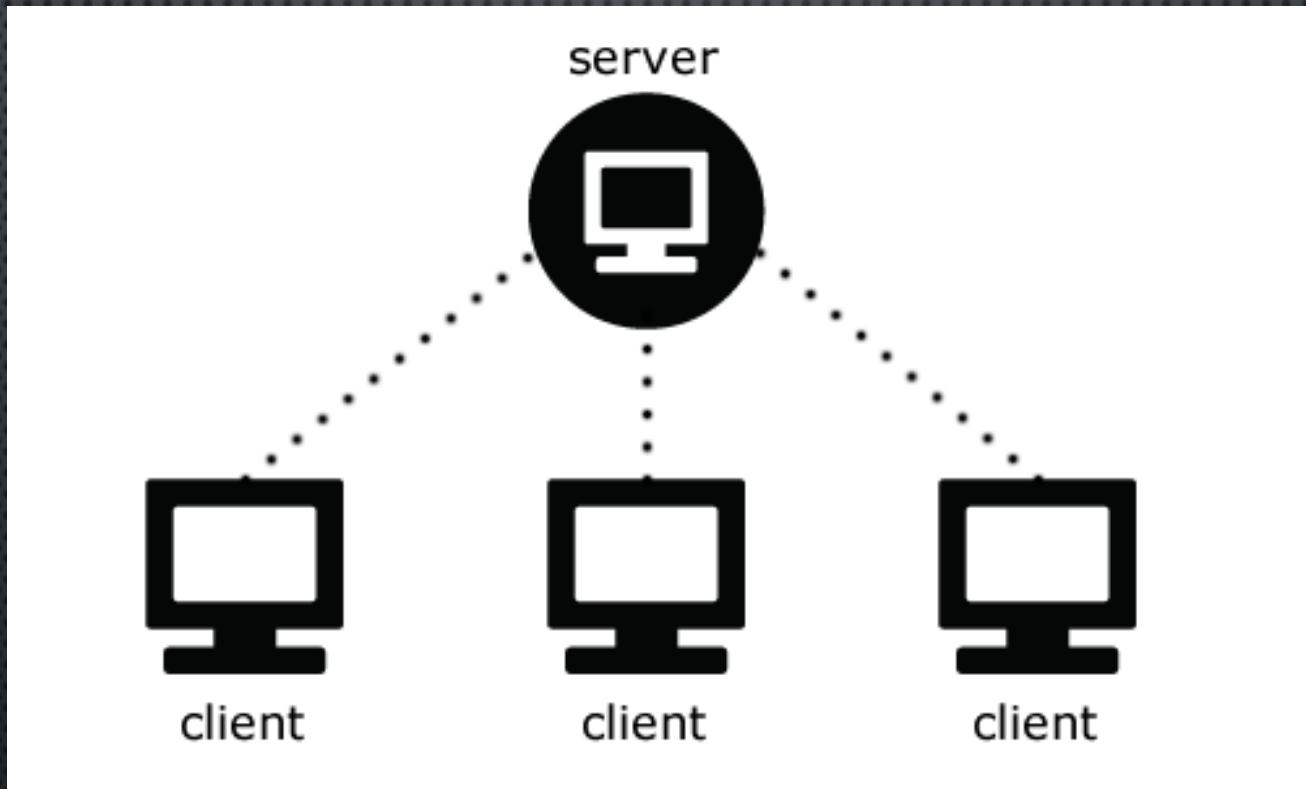
Whiteboard  
Drawing

Message

Audio

FEATURE 

# SERVER-CLIENT ?



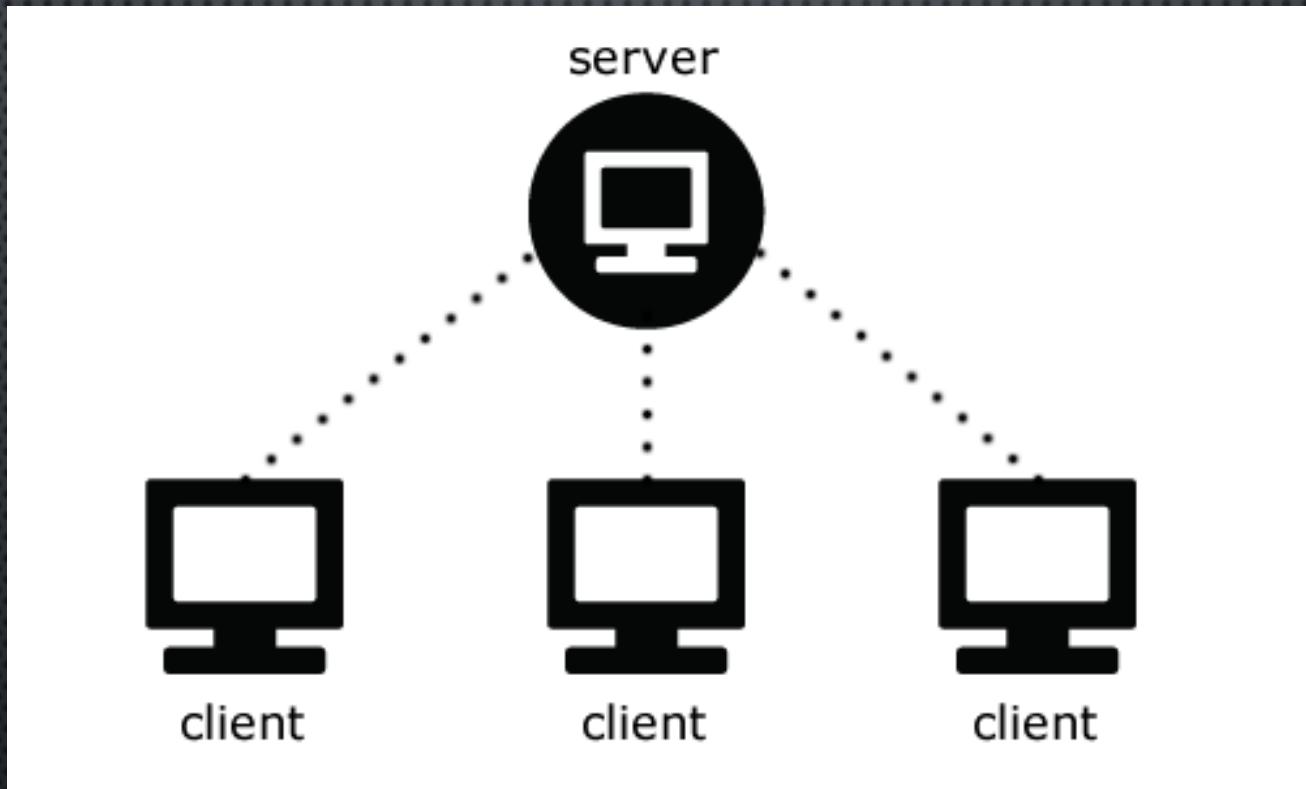
Centralization

Proper Management

Accessibility



# SERVER-CLIENT ?



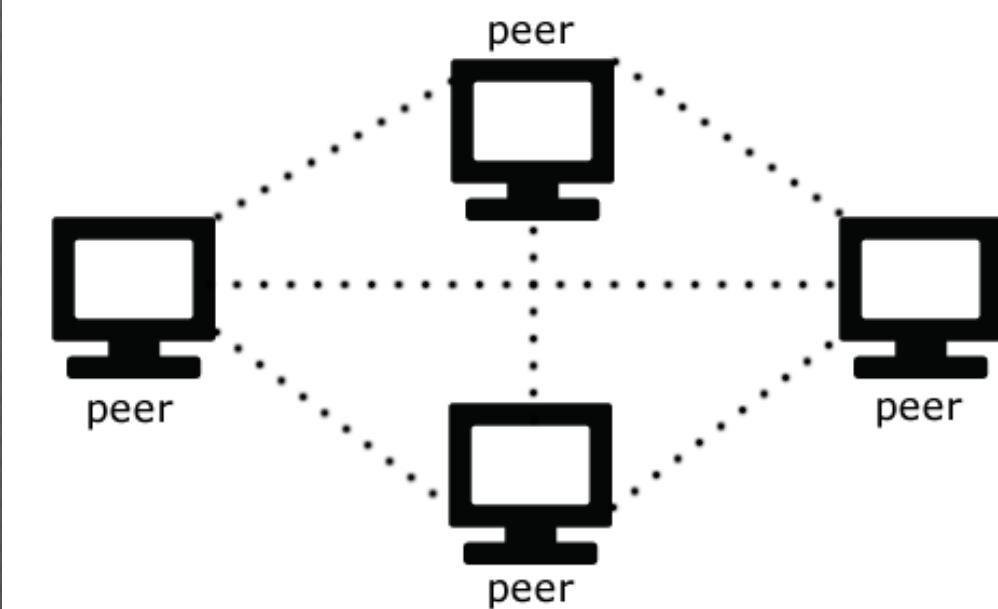
Congestion

Robust

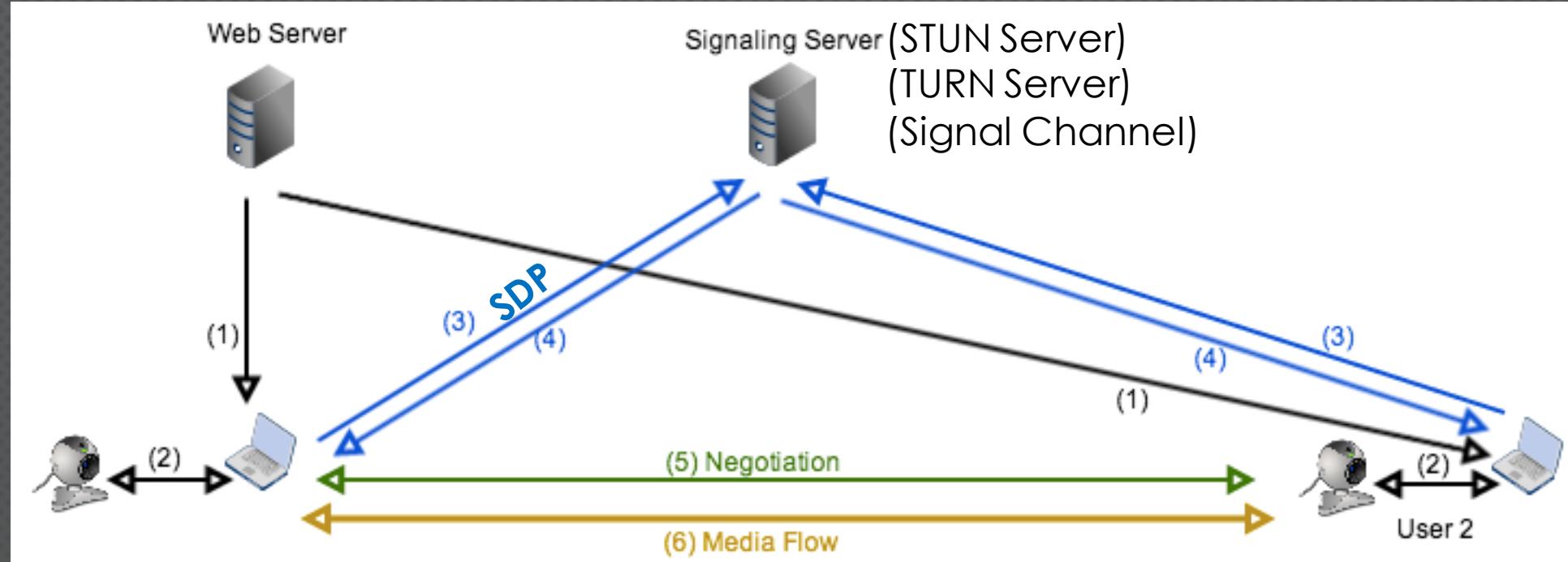
Cost



# PEER TO PEER !

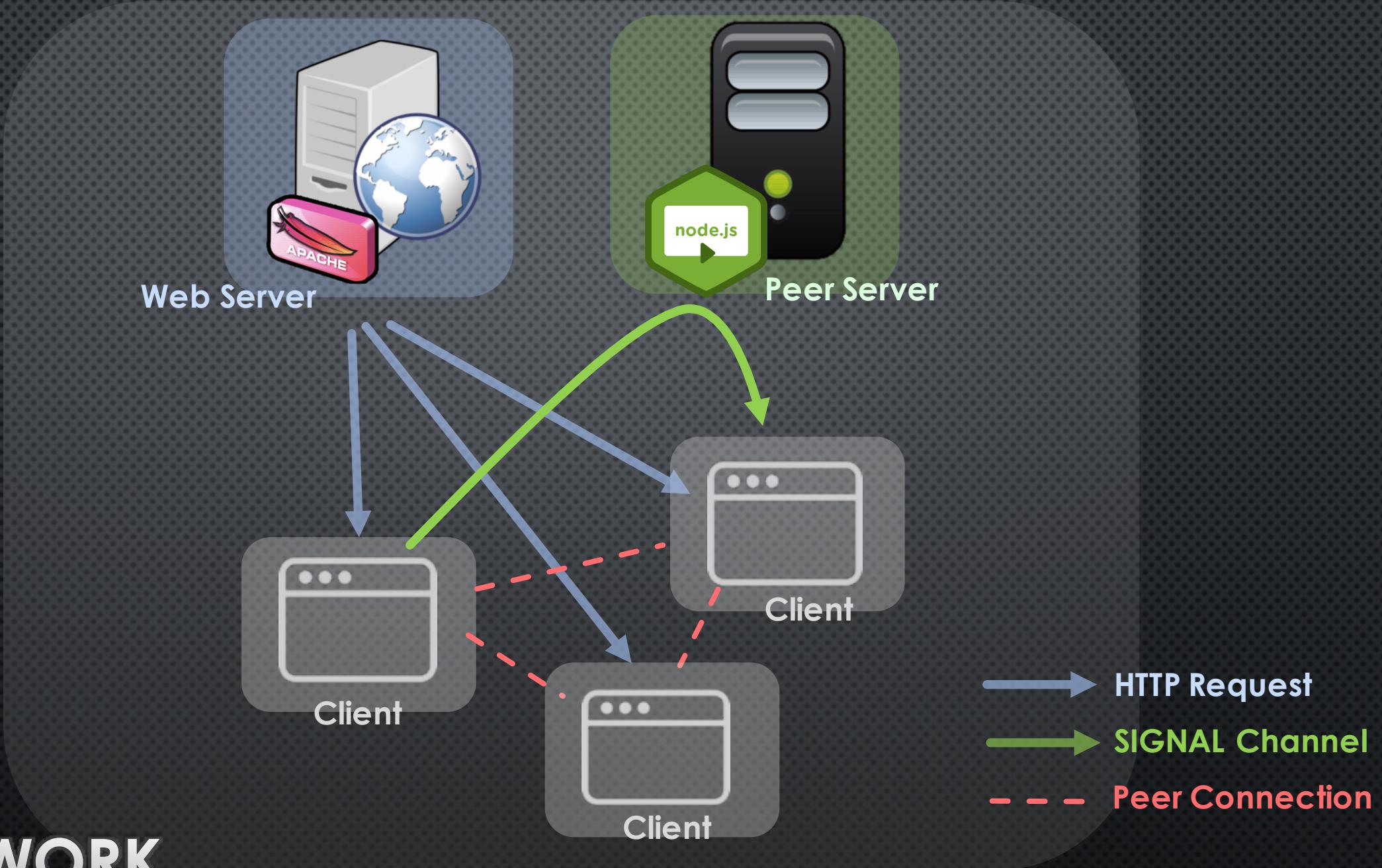


# REFERENCE

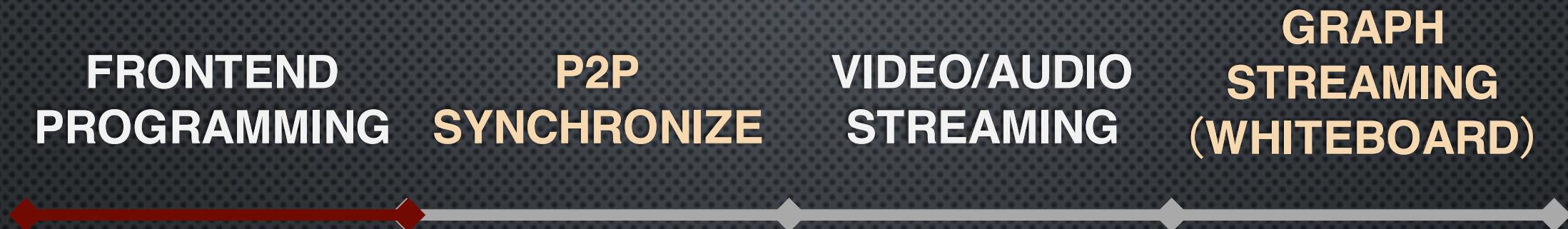


WEBRTC FRAMEWORK

# FRAMEWORK

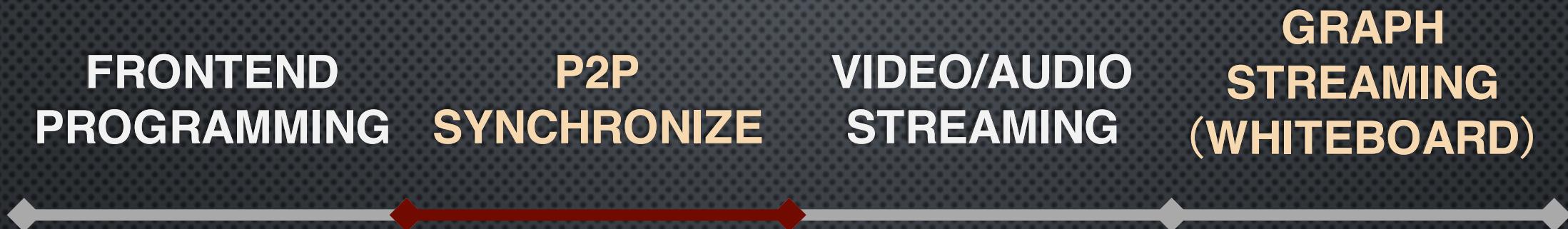


# DIFFICULTY



- HTML5/CSS/JS
- Node.js (backend Server)

# DIFFICULTY



- WebRTC framework (need more research)
  - One peer to multi-peer

# DIFFICULTY



- Convert Streaming into bytestream  
( need more research)

# DIFFICULTY

FRONTEND  
PROGRAMMING

P2P  
SYNCHRONIZE

VIDEO/AUDIO  
STREAMING

GRAPH  
STREAMING  
(WHITEBOARD)



- html(Canvas)
- Convert graph path to byte streaming



CLOUD SERA

Q&A

THANK YOU