SINGSPHERE

Bring the Karaoke Bar to Your Screen

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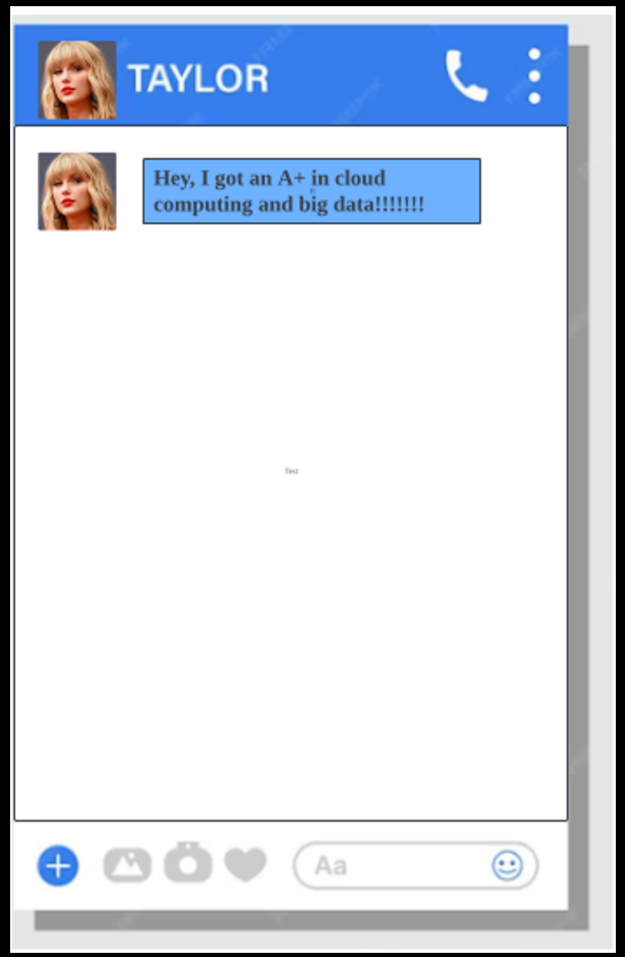
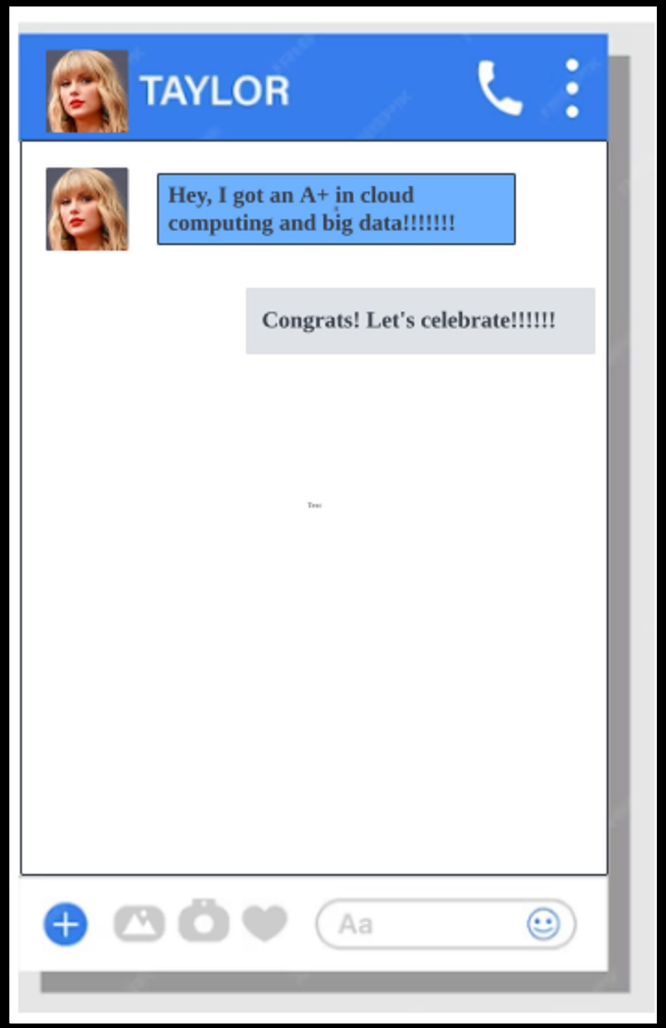
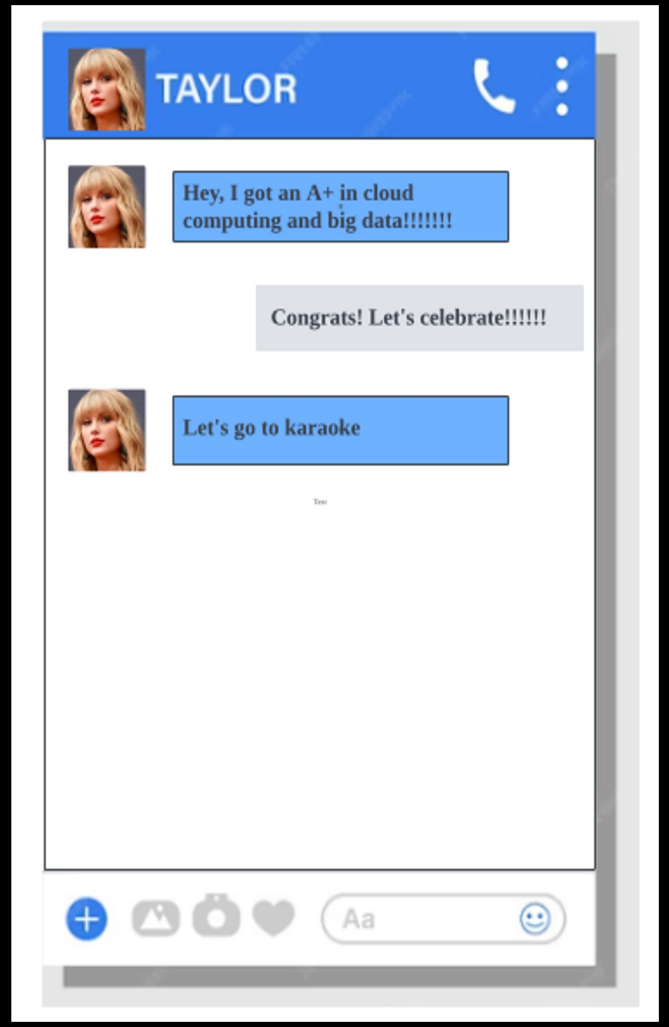
WHEN WE ALL FINISH FINALS…




TAYLOR
Hey, I got an A+ in cloud computing and big data!!!!!!!
Congrats! Let's celebrate!!!!!!
Aa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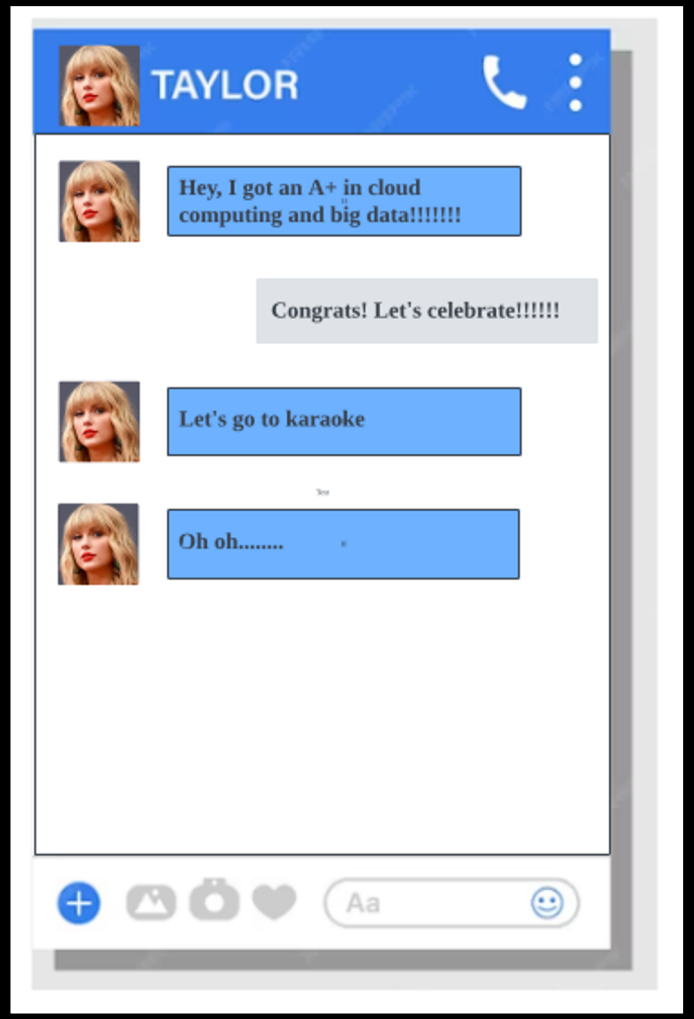
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Oh oh.....
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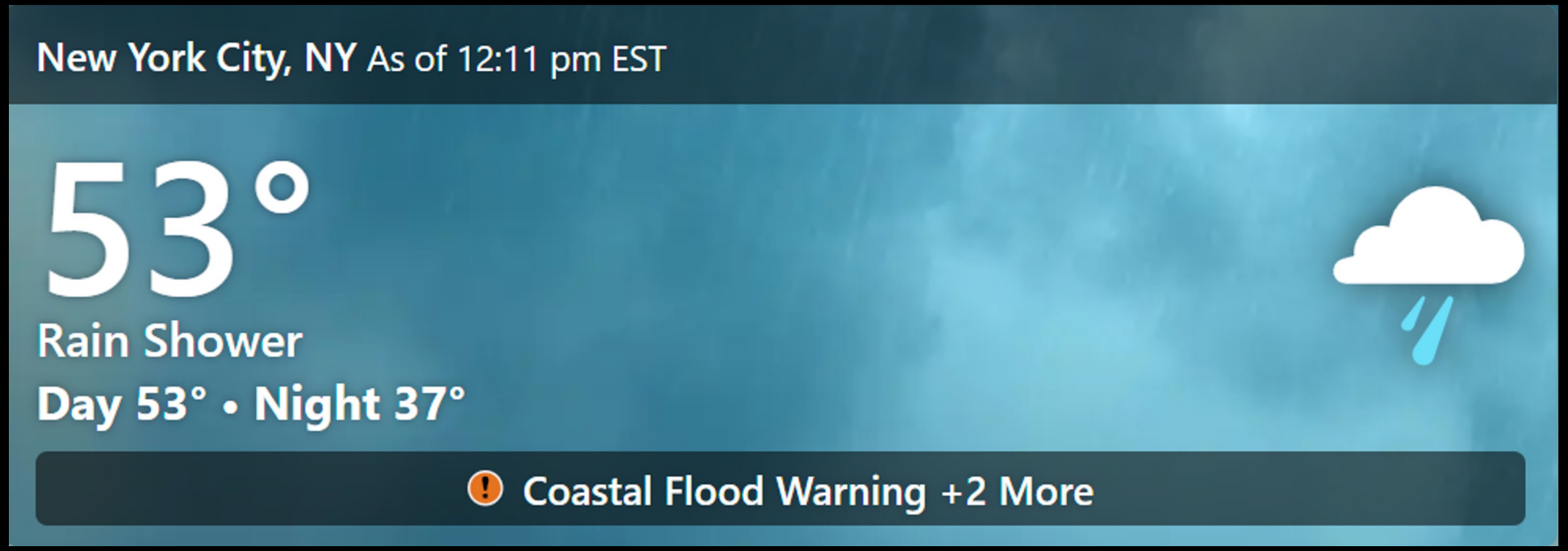
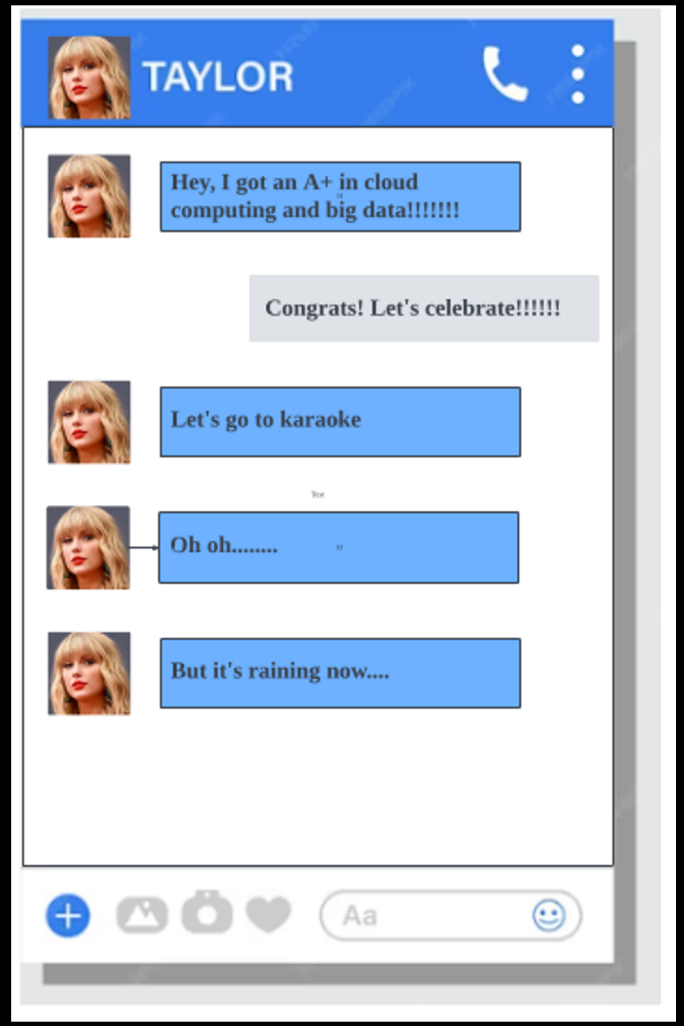
WHAT A BAD WEATHER TODAY

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Let's go to karaoke
Oh oh.....
But it's raining now....
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TAYLOR
Hey, I got an A+ in cloud computing and big data!!!!!!!
Congrats! Let's celebrate!!!!!!
Let's go to karaoke
Oh oh.....
But it's raining now....
It's okay. Try This!!!
SingSphere

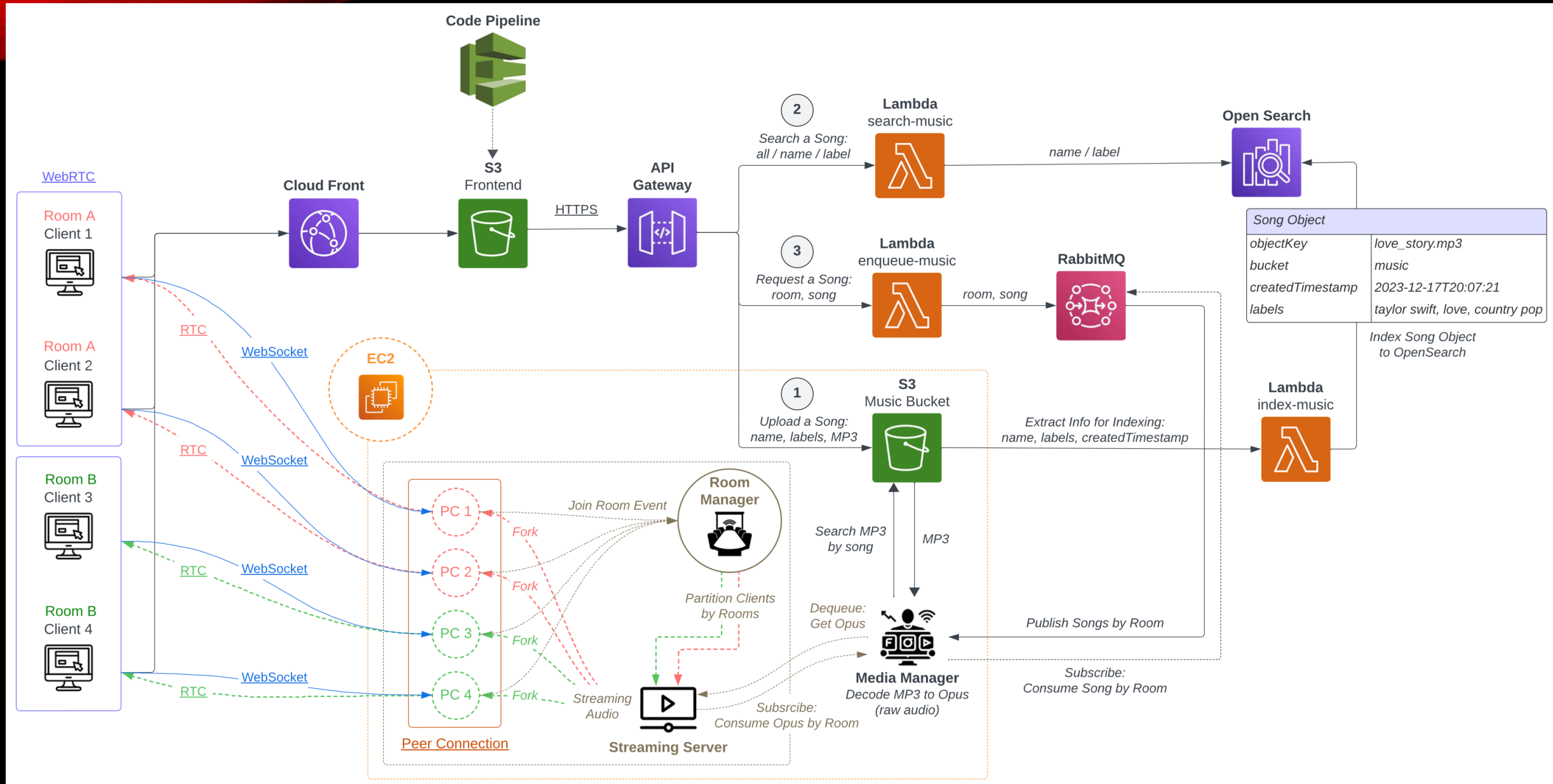
Welcome Back

SingSphere

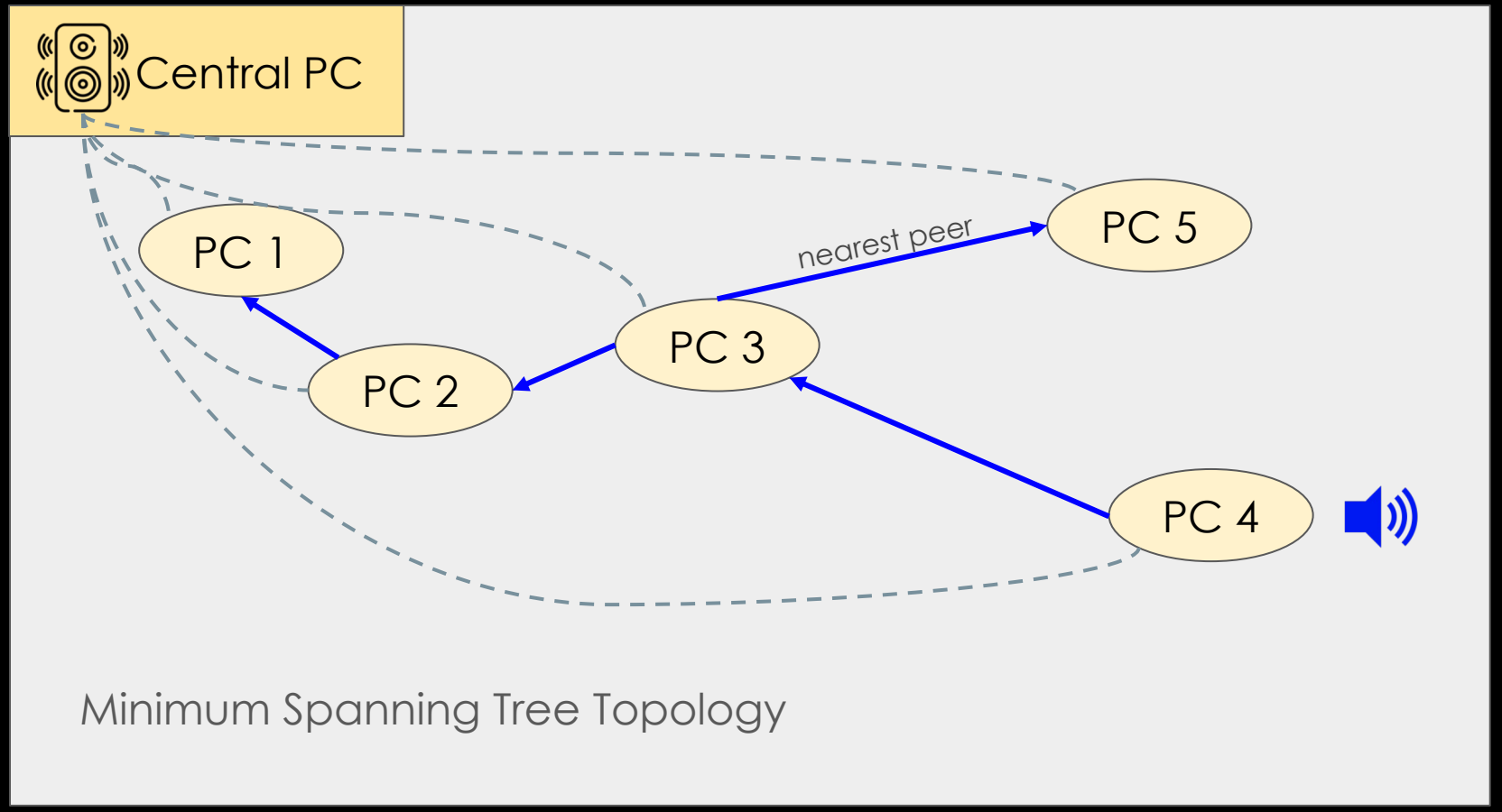
The all-in-one virtual karaoke app

Join

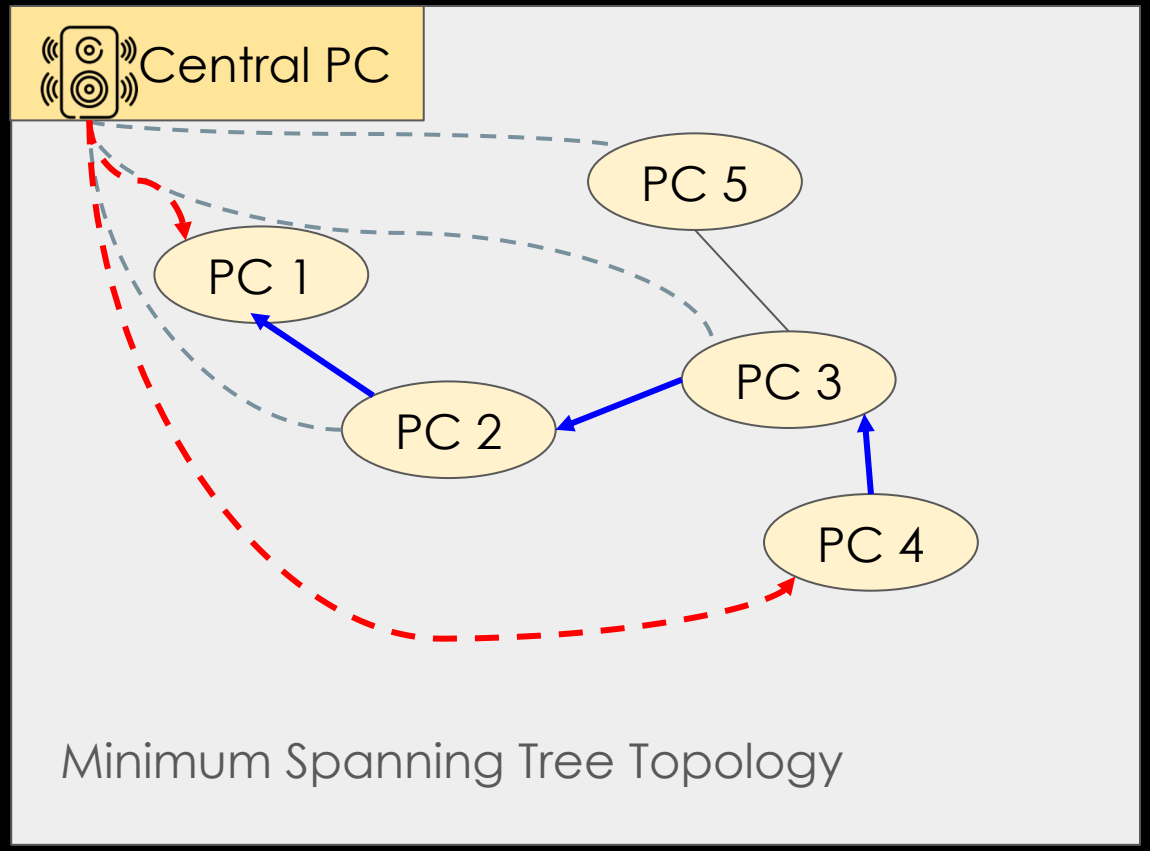
SYSTEM ARCHITECTURE



WEBRTC PEER CONNECTION (PC) ALGORITHM



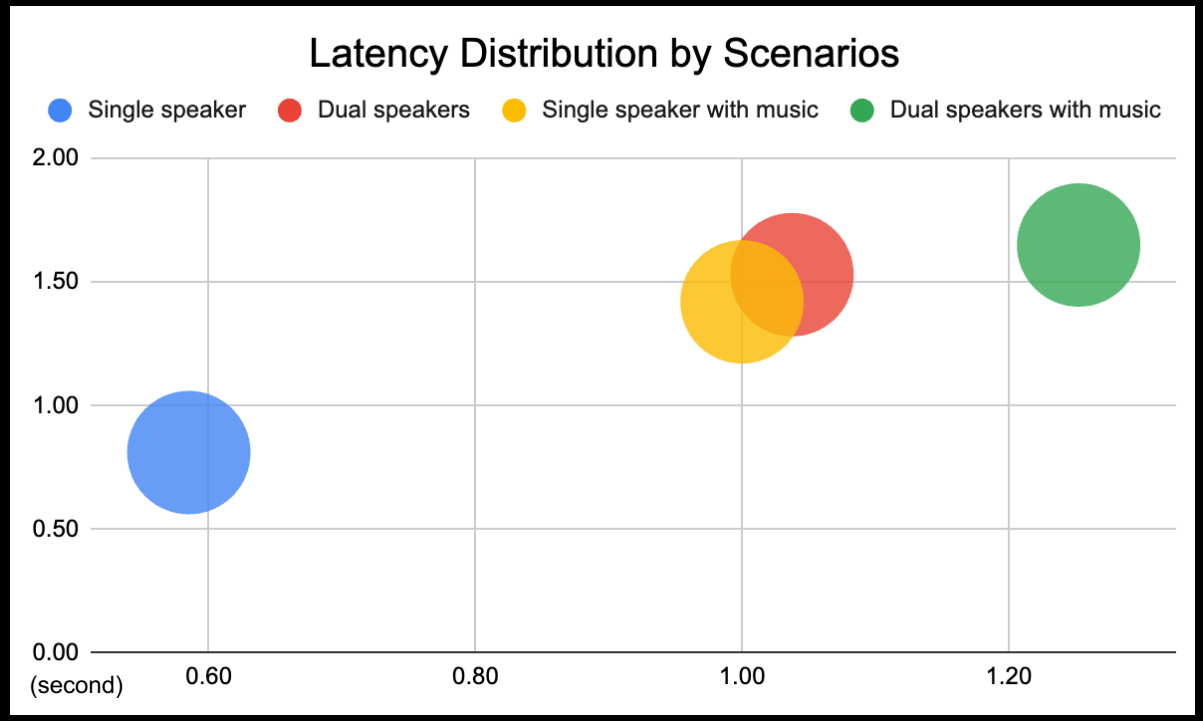
TECHNICAL ISSUE: MUSIC & VOICE SYNCHRONIZATION

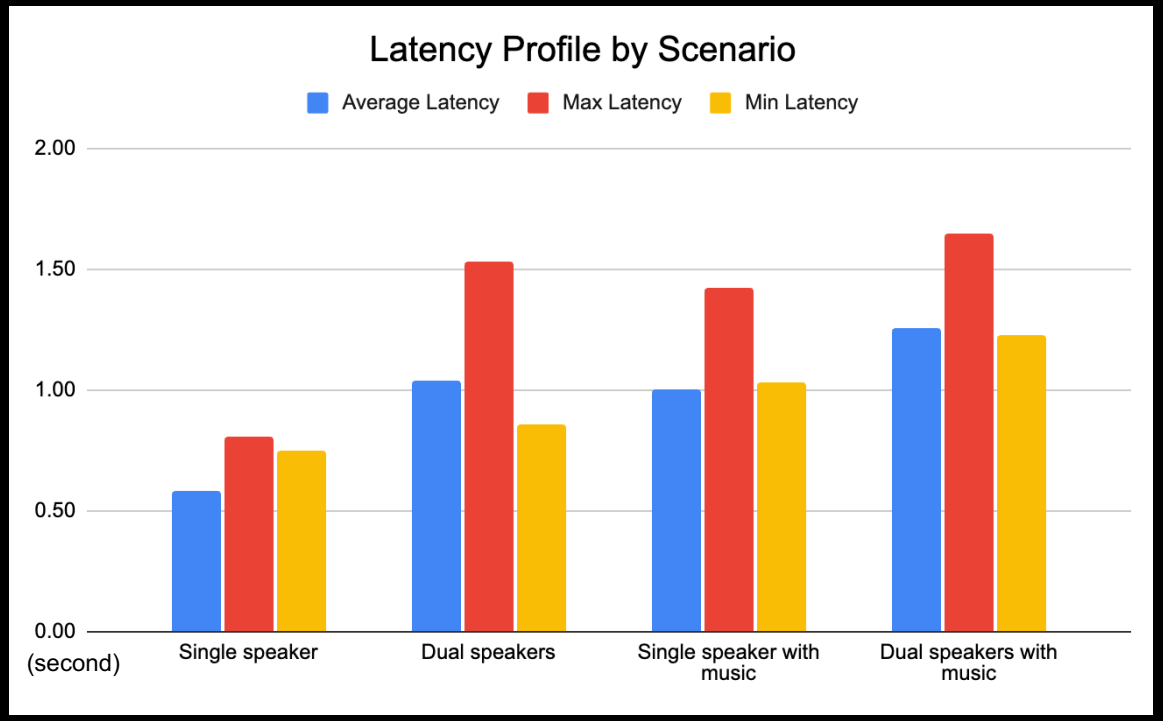


Minimum Spanning Tree Topology

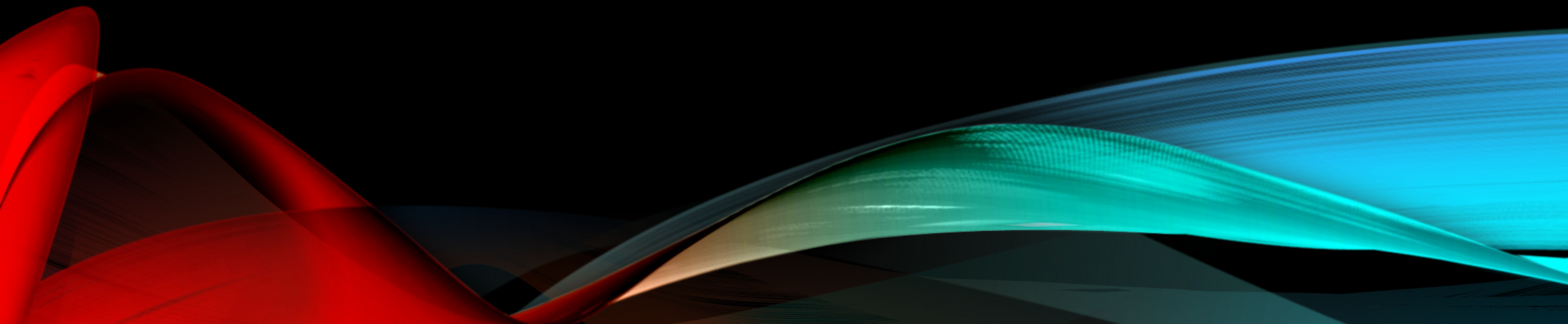
- Voice always comes after music, but peer's voice propagation takes time **(Red + Blue > Red)**
- Voice data congestion
- Network connection quality

PERFORMANCE EVALUATION





POTENTIAL SOLUTIONS

- **Solutions for Voice Congestion**
  - Implementing Load Balancing Across Multiple EC2 Instances using Kubernetes and Elastic Load Balancing (ELB)
  - Enhancing Performance through Vertical Scaling of EC2, OpenSearch, and RabbitMQ
- **Challenges in Online Music Voice Synchronization**
  - Human's High Sensitivity to Rhythm Synchronization in Music Audio and User's Voice
  - Current Examples Showcasing Synchronization Challenges: Zoom, Google Meet, Discord

THANK YOU