CN Project:
Online Conferencing Demo

Demo Setting

- To show the detailed functions of this demo, we firstly focus on two clients
  - One server runs on 10.16.2.5
  - Two clients
    - One runs on 10.16.2.5
    - One runs on 10.16.10.255
- There are two CLI menus in this demo: Main Menu and Meeting Menu

Client - Server: Time for Connection

- 1. You can connect the server as long as the client starts as the figures show

- 2. Or you can connect the server as the meeting begins

```
(base) wu@Wus-MacBook-Pro project % python server-th.py
Start listen to the port 5555 ...
Start listen to the port 5556 ...Start listen to the port 5557 ...
Start listen to the port 5558 ...
Start listen to the port 5559 ...

('10.16.2.5', 1111) is connected to the port 5555!
('10.16.2.5', 1112) is connected to the port 5556!
('10.16.2.5', 1113) is connected to the port 5557!
('10.16.2.5', 1114) is connected to the port 5558!
('10.16.2.5', 1115) is connected to the port 5559!
```

Server

```
(base) wu@Wus-MacBook-Pro project % python client-test.py
Client port:1111
10.16.2.5
Session Connected
Screen Connected
Control Connected
Video Connected
Audio Connected
1. Create a meeting
2. Join a meeting
Action:
```

Client

Client's Main Menu - Create/Join a Meeting

```
1. Create a meeting
2. Join a meeting
Action:alldata: b'\x03\x00\x00\x00\x00\x00\x00\x00\xf1\xe7w\x15\x00\x00\x00\x00F
\x00\x00\x00\x00\x00\x00\x00\x80\x03}q\x00(X\x07\x00\x00\x00Your idq\x01K\x00X\x
0b\x00\x00\x00Particpantsq\x02}q\x03K\x00X\t\x00\x00\x0010.16.2.5q\x04MW\x04\x86
q\x05su.'
70 70
3 360179697 70
You have created the meeting: 360179697
```

Create a meeting: The server should send a meeting id to the client

```
1. Create a meeting
2. Join a meeting
Action:2
action= 2
Please input the meeting id:360179697
Join meeting 360179697
4 360179697 98
You have joined the meeting: 360179697
```

```
You are in the meeting: 360179697
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
```

Join a meeting with a valid meeting id
-> Get to the Meeting Menu

```
1. Create a meeting
2. Join a meeting
Action:2
action= 2
Please input the meeting id:1231
Join meeting 123123123
```

```
0 0
10 123123123 0
Invalida sid!
action=
1. Create a meeting
2. Join a meeting
Action:
```

Join a meeting with an invalid meeting id
-> Stay in the Main Menu

Client’s Meeting Menu - Leave a Meeting

```
You are in the meeting: 360179697
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:alldata: b'\x07\x00\x00\x00\x00\x00\x00\x00\xf1\xe7w\x15\x00\x00\x00\x00\
x00\x00\x00\x00\x00\x00\x00\x00\x00'
0 0
7 360179697 0
You have left the meeting: 360179697

action=
1. Create a meeting
2. Join a meeting
Action:
```

Host leaves the meeting

In this demo, we end the meeting as long as the host quits. However, you should design a more elaborate mechanism to gain high scores.

```
27 27
9 360179697 27
Host have left the meeting: 360179697
1. Create a meeting
2. Join a meeting
Action:
```

```
You are in the meeting: 360179697
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:6
action= 6
Leave Meeting
```

```
You have left the meeting: 360179697

action=
1. Create a meeting
2. Join a meeting
Action:
```

Other people leave the meeting

```
New member 1(('10.16.10.255', 2222)) has joined the meeting: 360179697
alldata: b'\x08\x00\x00\x00\x00\x00\x00\x00\xf1\xe7w\x15\x00\x00\x00\x00\x1b\x00
\x00\x00\x00\x00\x00\x00\x80\x03}q\x00X\x0b\x00\x00\x00Left memberq\x01K\x01s.'
27 27
8 360179697 27
User 1 has left the meeting: 360179697
```

Information for join/leave

Client’s Meeting Menu: Share Video/Screen/Audio

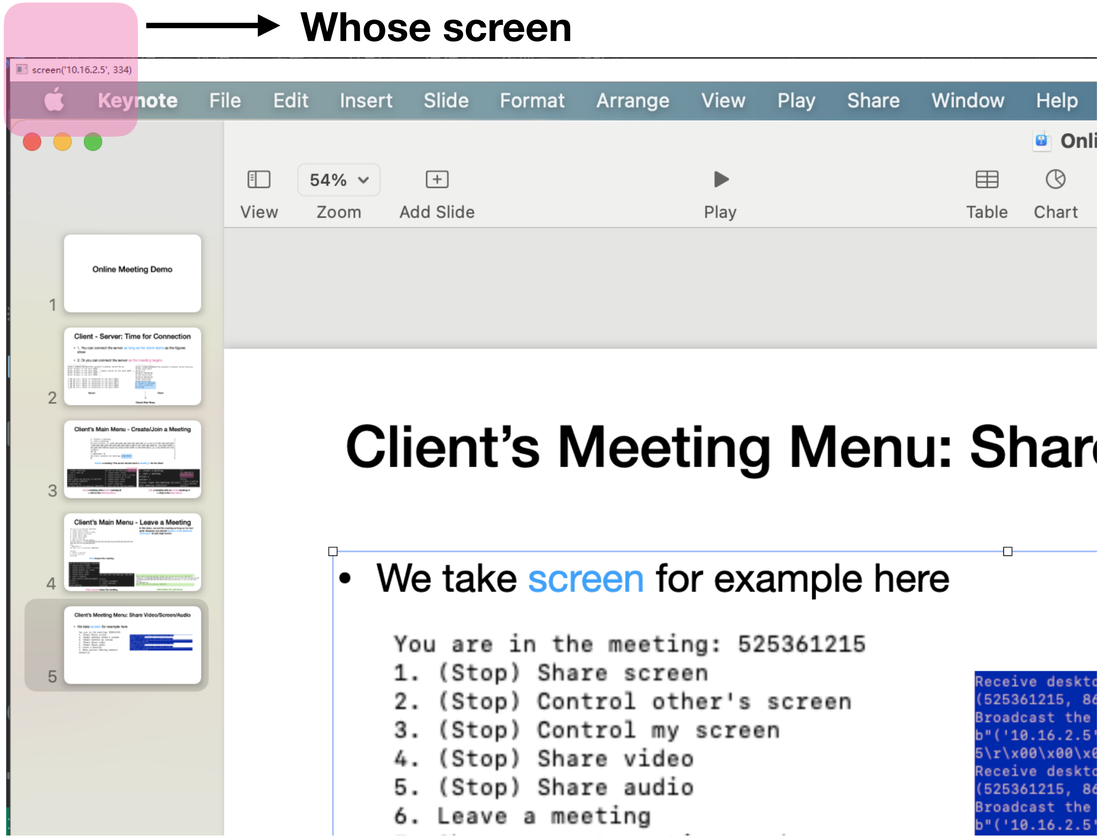
- We take screen for example here - Start

```
You are in the meeting: 525361215
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:1
```

1. Client starts to share the screen

```
Receive desktop data (header) from b"('10.16.2.5', 334)"
(525361215, 865671)
Broadcast the b"('10.16.2.5', 334)"'s desktop (header):
b"('10.16.2.5', 334)\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x875\r\x00\x00\x00\x00\x00"
Receive desktop data (header) from b"('10.16.2.5', 334)"
(525361215, 865671)
Broadcast the b"('10.16.2.5', 334)"'s desktop (header):
b"('10.16.2.5', 334)\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x875\r\x00\x00\x00\x00\x00"
```

2. Server broadcast the screen data among the meeting



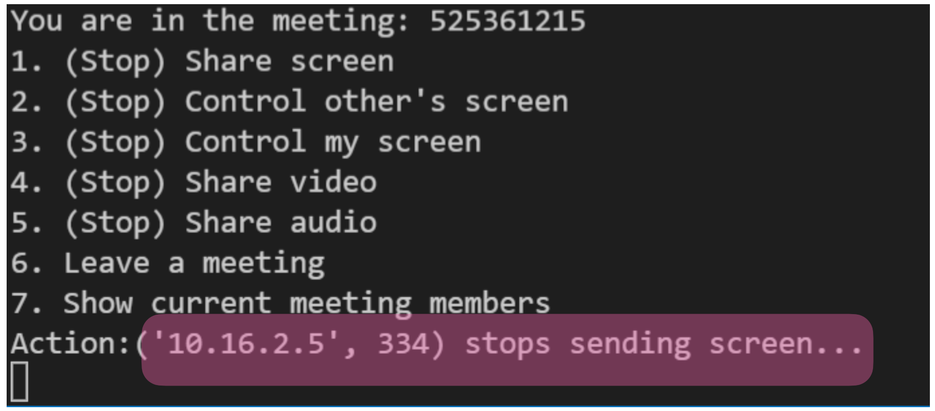
3. Other Clients see the sharer’s screen

Client’s Meeting Menu: Share Video/Screen/Audio

- We take screen for example here - Stop

```
You are in the meeting: 525361215
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:1
action= 1
Stop sending screen...
```

1. Client stops to share the screen



2. Other Clients close the window of the sharer’s screen and get a message of stop sending

Client’s Meeting Menu: Desktop Control

- We show a simple control permission mechanism in this demo, you should make it more practical in your project
  - 1. Ask for control permission

```
You are in the meeting: 525361215
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:2
action= 2
Please inter the user's id:1
0 0 525361215 0 1 0
control send (0, 0, 525361215, 0, 1, 0)
```

```
Action:receive header: 0 0 525361215 0 1 0
request permission

User 0 requests to control your pc:[y/n] action=

User 0 requests to control your pc:[y/n] y
You have allowed the request from user 0
1 0 525361215 1 0 0
```

```
Action:receive header: 1 0 525361215 1 0 0
You are allowed to control user 1's desktop
```

```
User 0 requests to control your pc:[y/n] n
You have denied the request from user 0
1 1 727759128 1 0 0
```

```
Action:receive header: 1 1 727759128 1 0 0
You are denied to control user 1's desktop
```

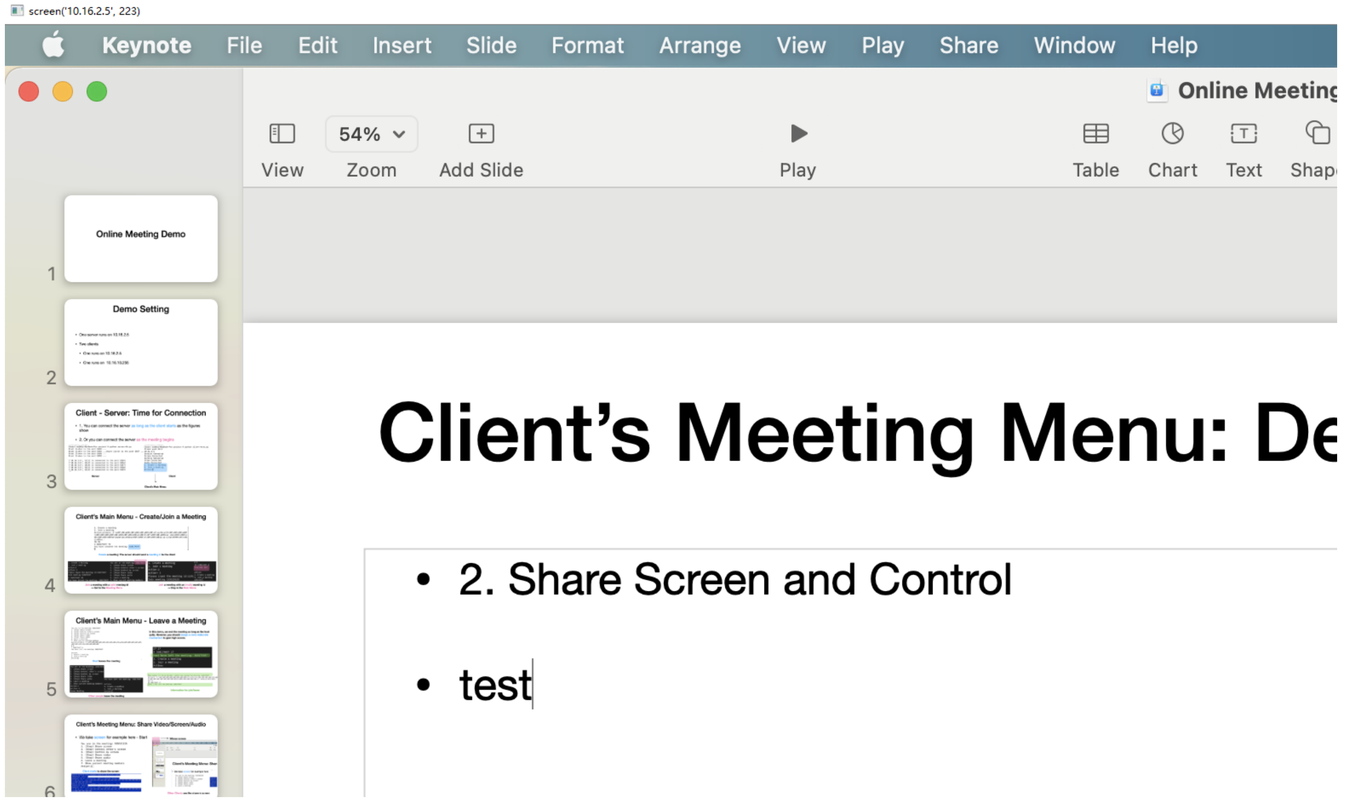
1. Ask for permission

2. Allow or Deny

3. Get the reply from the controllee

Client’s Meeting Menu: Desktop Control

- 2. Share Screen and Control



We can control the computer 10.16.2.5:2223 via 10.16.10.255
(Mouse and Keyboard)

Client’s Meeting Menu: Desktop Control

- 3. Stop Control

```
You are in the meeting: 447462012
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:2
action= 2
Stop control 1's desktop
0 1 447462012 0 1 0
control send (0, 1, 447462012, 0, 1, 0)
```

1. Controller releases the control

```
Action:receive header: 0 1 447462012 0 1 0
request release
0 1
```

2. Controllee gets the request and release the control locally

More Meetings with More Clients

- The server should support more than one meetings at the same time
- Two meetings:

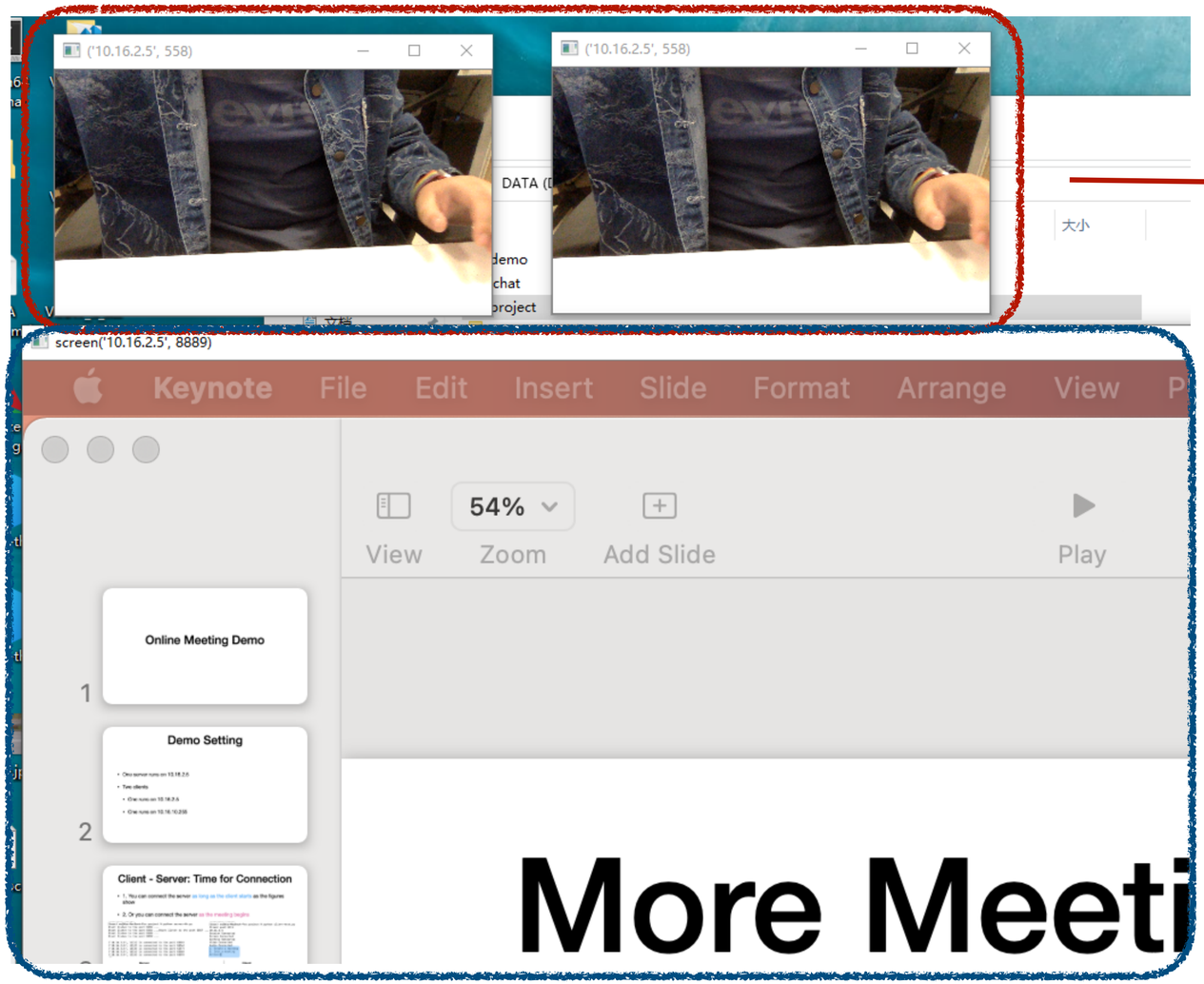
```
You are in the meeting: 447462012
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:7
action= 7
{0: ('10.16.10.255', 222), 1: ('10.16.2.5', 555), 2: ('10.16.10.255', 4444)}
```

Meeting 1 with 3 Clients

```
You are in the meeting: 316139622
1. (Stop) Share screen
2. (Stop) Control other's screen
3. (Stop) Control my screen
4. (Stop) Share video
5. (Stop) Share audio
6. Leave a meeting
7. Show current meeting members
Action:7
action= 7
{0: ('10.16.10.255', 5555), 1: ('10.16.2.5', 8888)}
```

Meeting 2 with two clients

More Meetings with More Clients



10.16.2.5: 555 in Meeting 1 is sharing the video
Hence two clients (10.16.10.255:222/4444) received

10.16.2.5: 8888 in Meeting 2 is sharing the screen
Hence the client (10.16.10.255: 5555) received

```
Receive desktop data (header) from b"('10.16.2.5', 556)"
(447462012, 0)
Broadcast the b"('10.16.2.5', 556)"'s desktop (header):
b"('10.16.2.5', 556)\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00
\x00\x00\x00\x00\x00\x00\x00"
Video recive header:
(447462012, 204263)
Receive video data (header) from b"('10.16.2.5', 558)"
(447462012, 204263)
Broadcast b"('10.16.2.5', 558)"'s video data (header)
b"('10.16.2.5', 558)\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00\x00
\x1d\x03\x00\x00\x00\x00\x00"
```

Client View

Server View

Summary

- The demo only provides very simple mechanisms. You are encouraged to design more elaborate mechanisms for good grades
- You should at least implement the functions which are shown in this demo
- If you use CLI in your project, you should provide useful information in the CLI. We have no certain format for these information
- You can implement the GUI as well