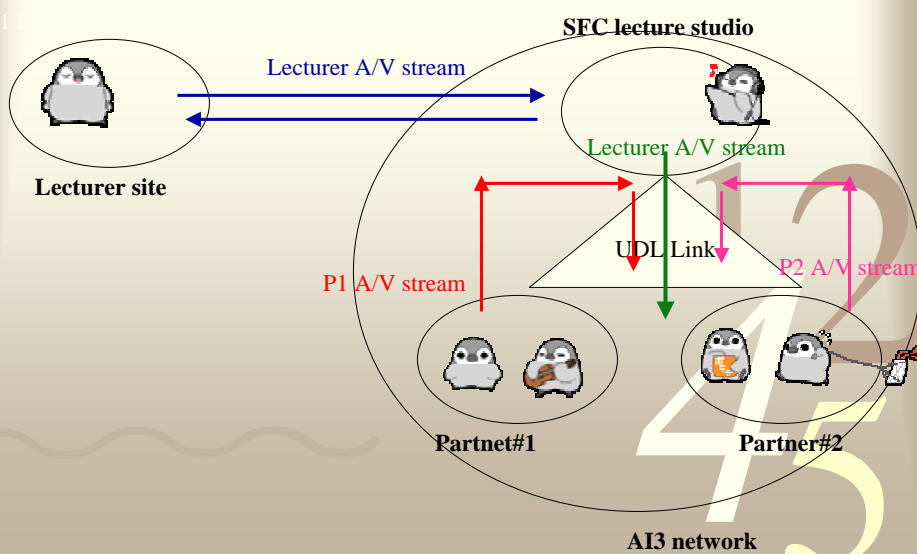


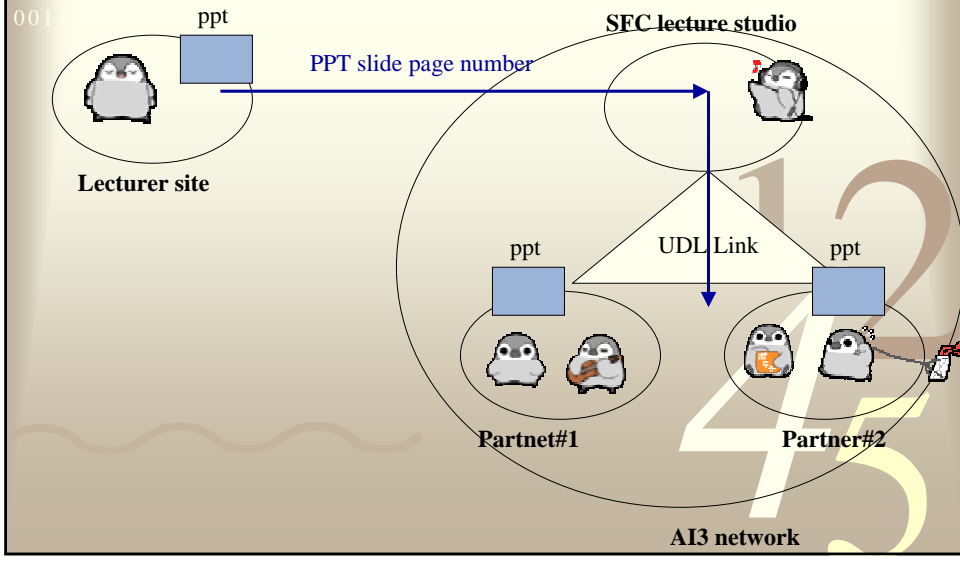
# SOI Asia Realtime class

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SOI Asia Workshop 2005  
Unibraw, Indonesia

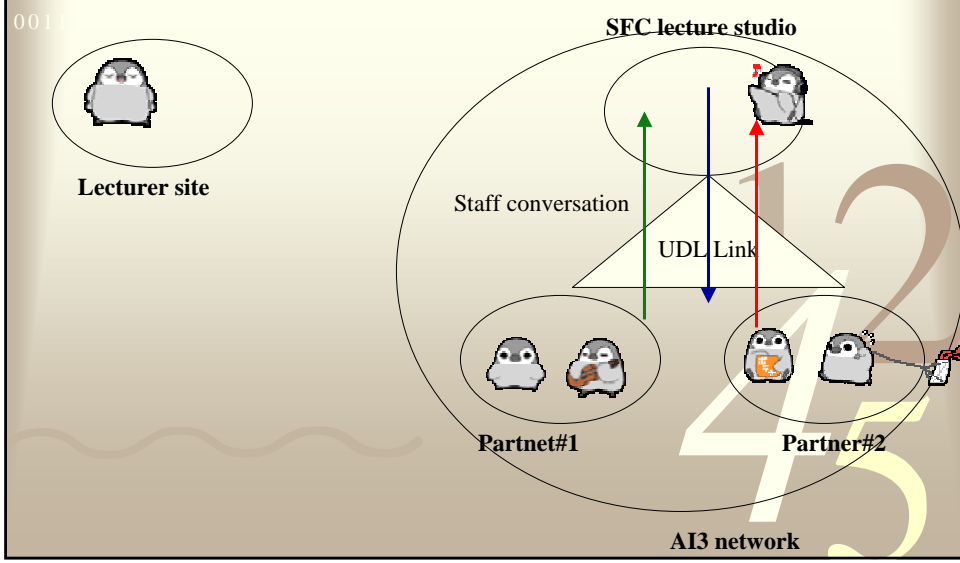
## Realtime Class Components (1)



## Realtime Class Components (2)



## Realtime Class Components (3)



## Realtime class system

0011

- (1) Video/Audio System
- (2) PPT Synchronization
- (3) Staff communication

12  
45

## Classroom Example

0011



2  
45

## Realtime class system

(1) Video/Audio System

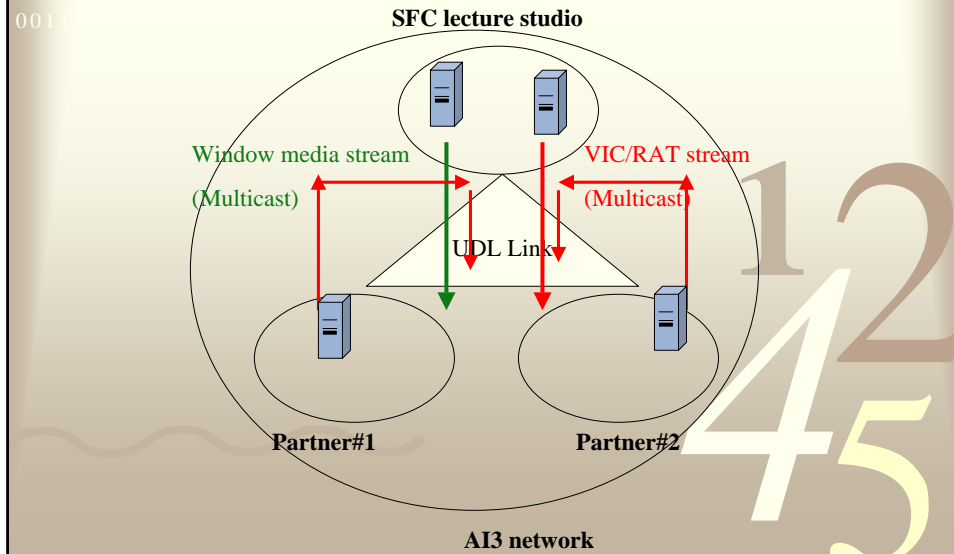
(2) PPT Synchronization

(3) Staff communication

## 2 realtime applications

- VIC/RAT
  - Receive lecture stream
  - Send classroom stream
  - Interactive session
  - Mutiparties , many senders and many receivers
- Window Media
  - Receive lecture stream only
  - Non-interactive session
  - One sender and many receivers

# Real time class



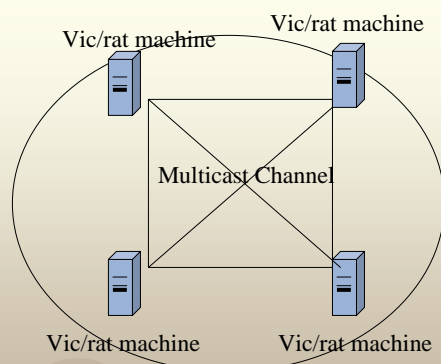
# VIC/RAT

- 0011
- VIC for send/receive Video
  - RAT for send/receive Audio
  - Multicast IPv4/IPv6
- 12  
45

## VIC/RAT model

- Peer to Peer relationship
- Every node is equal
- Every node can receive/send to same multicast address

## VIC/RAT



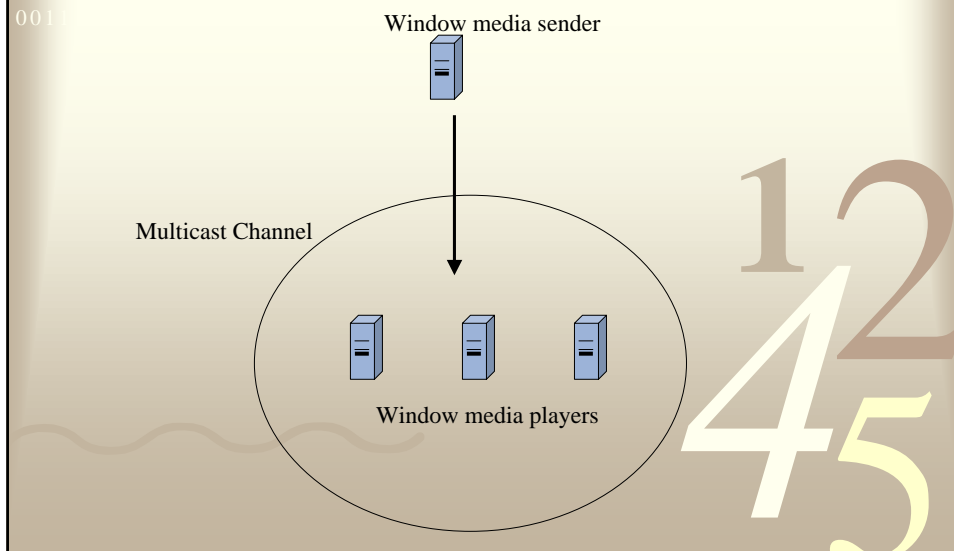
## Window media

- Window media sender at Japan
- Partners can receive only
- Multicast IPv4/IPv6

## Window Media model

- Sender-receiver relationship
- Sender sends to one multicast address (but not receive)
- Receiver joins to that multicast address (but not send)

## Window media



## Lab

0011

From Hands-out, follow

- STEP 1  
(please add following command in step 1)

```
# ipv6 install
```

- STEP 2
- STEP 3
- STEP 4

To the right of the text, there are large, stylized numbers: "12" in brown and "45" in yellow.

## VIC

0011

- All parties send/receive to same multicast address/port
- SOI Asia VIC address/port
  - IPv4 233.18.109.3 port 6666
  - IPv6 ff38:0:2001:d30:101:2:1:3 port 3333
- Application specifies port
  - #vic 233.18.109.3/6666
  - #vic ff38:0:2001:d30:101:2:1:3/3333

## RAT

0011

- All parties send/receive to same multicast address/port
- SOI Asia RAT address/port
  - IPv4 233.18.109.7 port 7777
  - IPv6 ff38:0:2001:d30:101:2:1:4 port 4444
- Application specifies port
  - #rat 233.18.109.4/7777
  - #rat ff38:0:2001:d30:101:2:1:4/4444

## Window Media

- Sender sends to a multicast address
- Sender generates announcement files(.asx,.nsc) contains multicast information
- Client machine downloads that (.asx,.nsc) files to machine
- Use window media player to open .asx
- Window media player will join stream

## Window media announcement file

- <http://www.soi.wide.ad.jp/soi-asia/wmt/>  
stream 1 : test  
stream 2 : class  
stream 3 : class (backup)  
IPV6 test stream : test (ipv6)

## Realtime class system

0011

(1) Video/Audio System

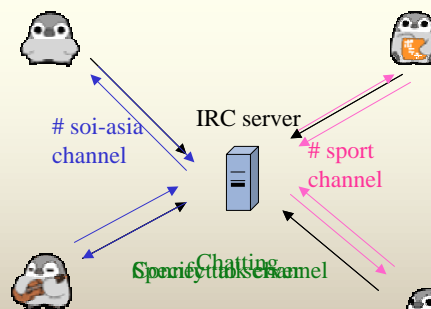
(2) PPT Synchronization

(3) Staff communication

12  
45

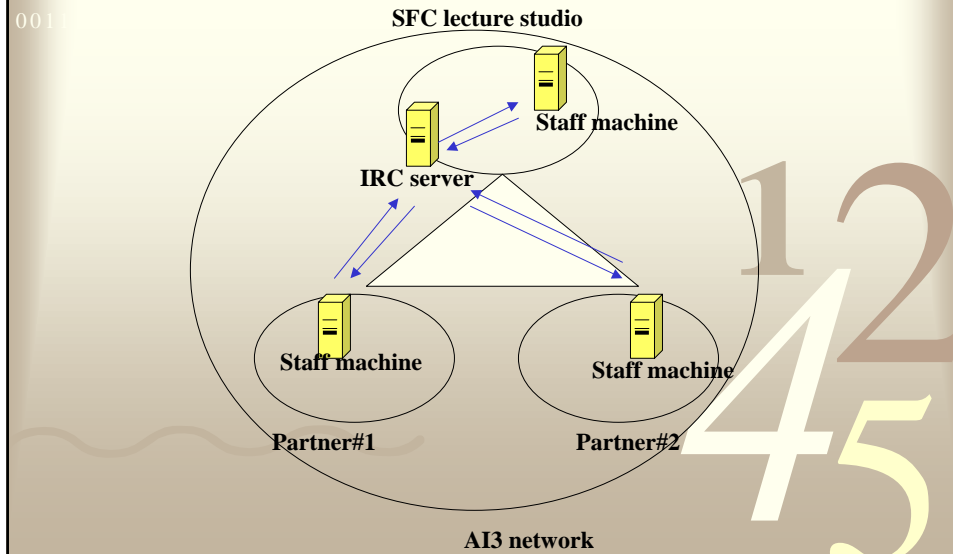
## IRC (Internet Relay Chat)

0011



12  
45

## Real time class : IRC



## Step 5

- 0011
- Install MIRC program
  - Connect to talk to each others
- 12  
45

## Realtime class system

(1) Video/Audio System

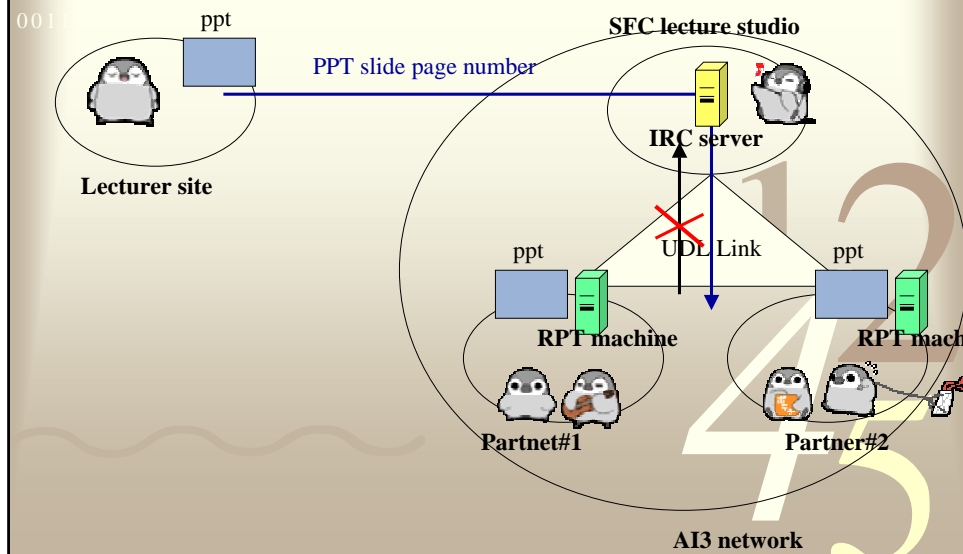
(2) PPT Synchronization

(3) Staff communication

## RPT

- Remote Powerpoint ?
- Slide synchronization from lecturer to partners
- Use IRC to communicate (but different channel to staff talking channel)

## Realtime Class Components (2)



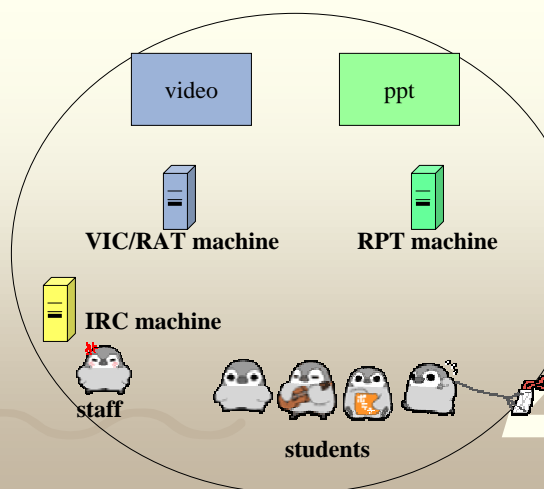
## Step 6

- Install RPT program
- Get test PPT file from Unibraw soi server
- Follow [STEP6]
- Everyone joined, I will move slide

## Equipments

- VIC/RAT, WMT machine
  - Video camera, Microphone, Speaker
  - (Mixer/Echo canceller)
- RPT machine
- IRC machine
- 2 projecting boards/projectors
- 1 staff

## Partner classroom



## Procedure

0011

1. New Course Announcement
2. Course Enrollment - optional
3. Lecture Announcement (1 day before)
4. Lecture Material Announcement
5. Lecture Preparation (30 mins before )
6. Operating Realtime Lecture session
7. Operating Q/A session  
vic/rat, bbs
8. Lecture report

1 2  
4 5

## Troubleshoot

0011

- VIC/RAT, WMT
  - System problem
    - Ipv6 install, window firewall
  - Connectivity problem
    - IPv6 – Check Multicast v6, Unicast v4 & v6
    - IPv4 - Multicast v4, Unicast v4
  - Quality problem
    - Japan -> your site – report through irc
    - Your site -> Japan, others
      - Check over sending rate of vic/rat
      - Audio traffic (RAT) is more important
    - Other sites -> your site – report through irc

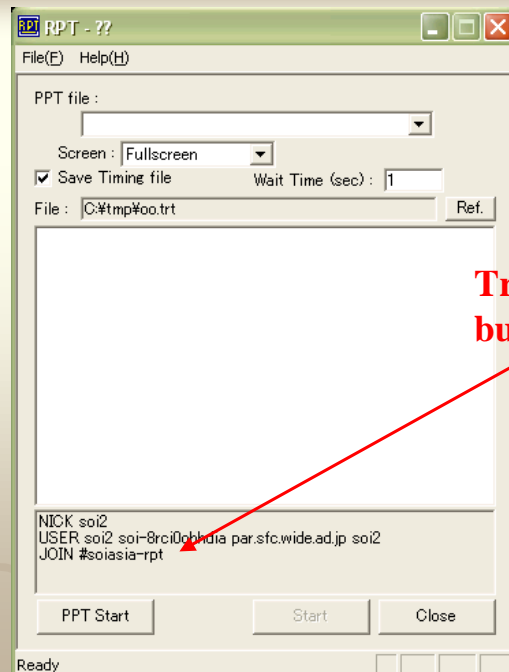
1 2  
4 5

0011

- IRC, RPT, others
  - Connectivity problem
    - Unicast v4 to IRC server
  - Slide doesn't change (first time)
    - Check if you are in and correct IRC channel
  - Slide doesn't change (after sometime)
    - May be disconnected from IRC
    - Reconnect

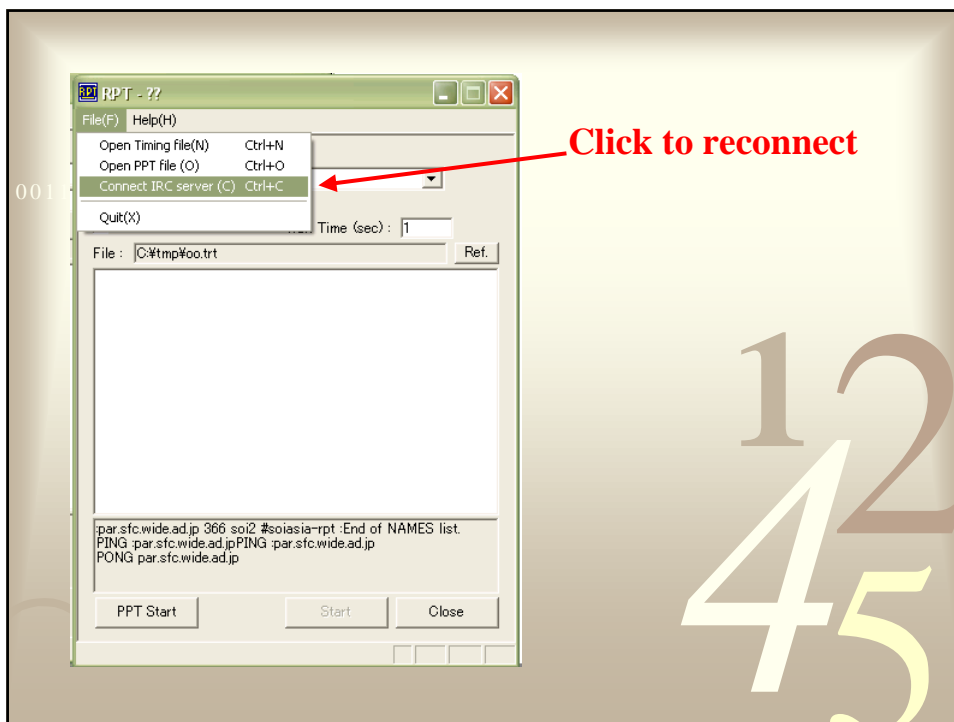
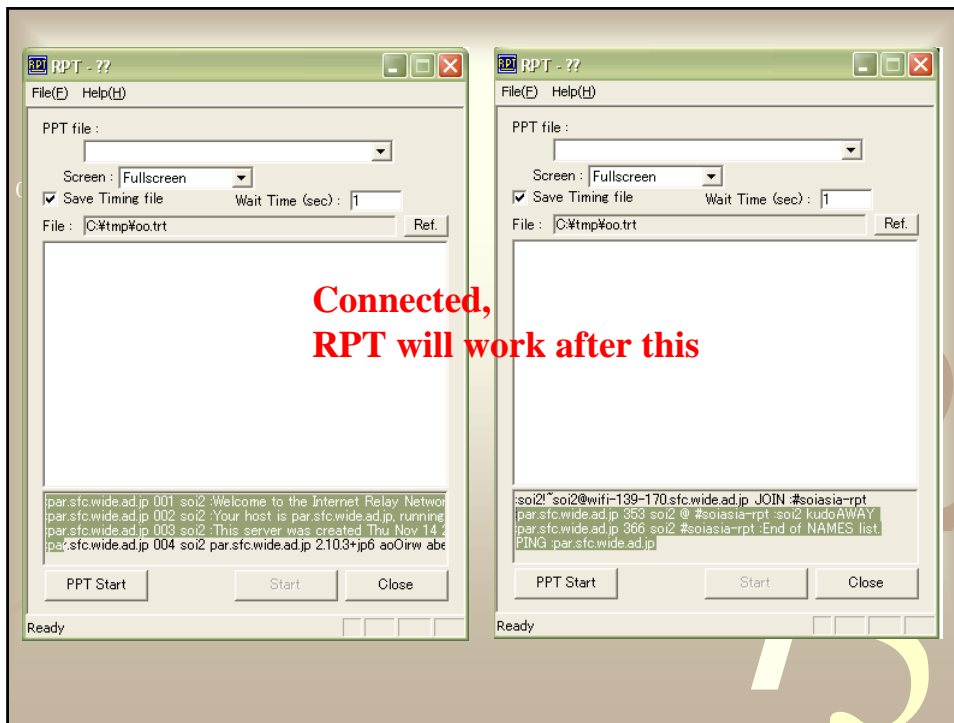
1 2  
4 5

0011



**Trying to JOIN  
but not yet success**

1 2  
4 5



## SOI Asia A/V setting

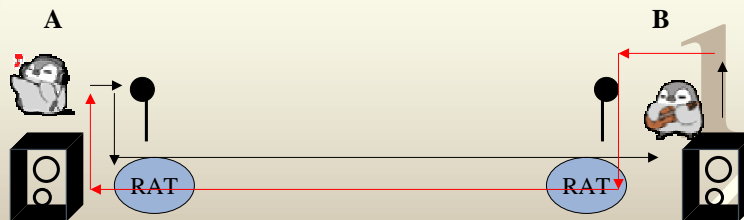
0011

- Better Audio Quality
- Prevent Echo

12  
45

## Echo Loop

0011



## Echo Loop

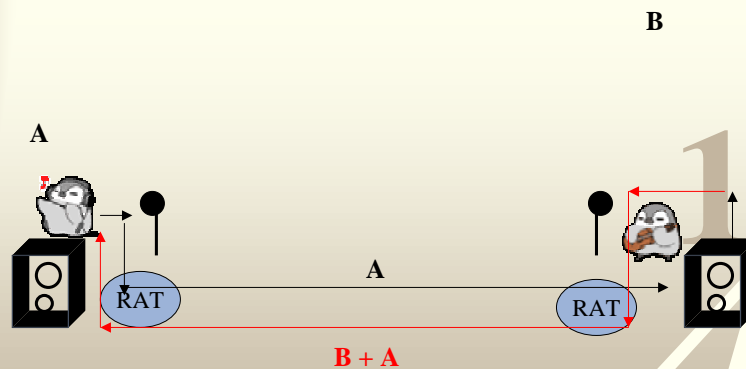
0011

- Turn off mic
- Do not select talk on RAT if not talking
- Cannot avoid during Q/A

12  
45

## Echo Loop

0011



12  
45

## SOI Asia A/V set

- Mixer
- Echo Canceller

## Echo canceller

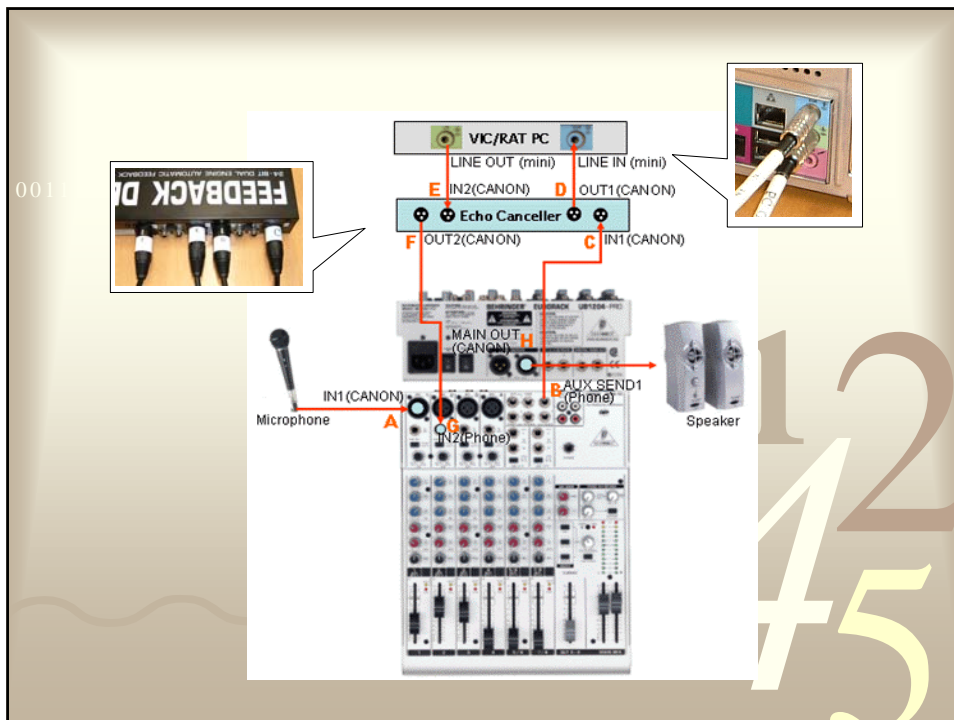
- 2 inputs
  - Local sound (our mic)
  - Remote sound ( output from rat)
  - Compare and deduct repeated sound
- 2 outputs
  - Local sound
  - Remote sound with no echo

# Mixer

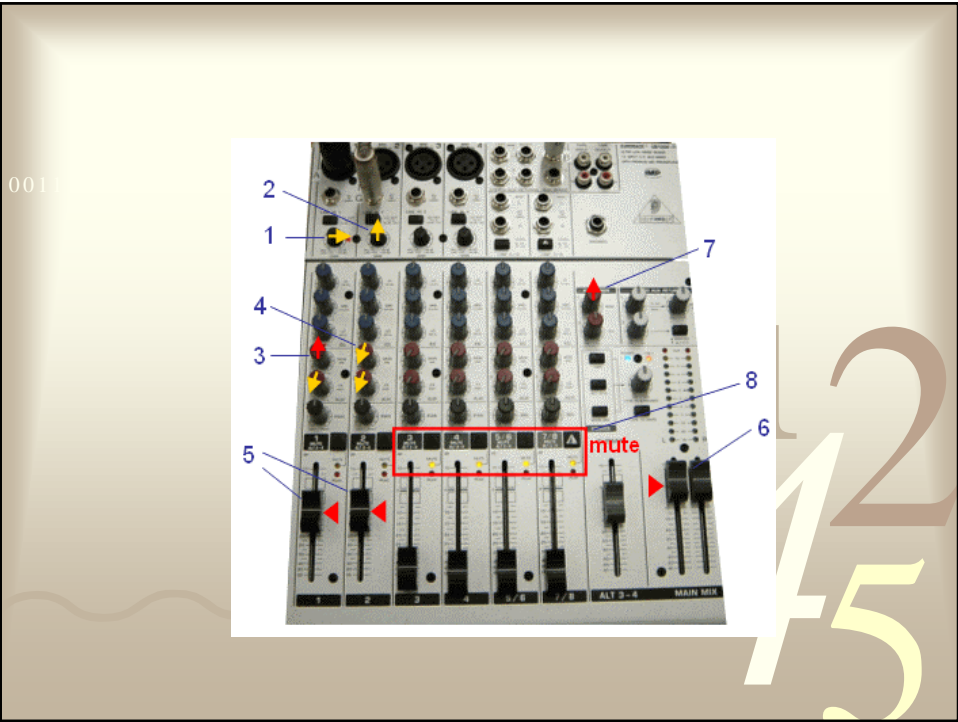
0011

- Sound Redirection
- Cannot connect mic directly to echo canceller
- Better Audio Quality

12  
45



12  
45



0011

Thank you

12  
45