

# Components Based Design and Development

Computer Engineering Studies  
Universidad Carlos III de Madrid

## Unit 1: Virtual Teaching

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## Course Teaching Methodology

- Experimental Teaching Method
  - Virtual and Distance Theory and Practice course
- Virtual Classroom
  - The “official Student” is a Computer
  - The physical student is also present by means of Video-Camera and microphones
  - The “official Teacher” is a (Set of) Computer(s)
  - Available multiple collaboration tools as well as programs
  - Microsoft ConferenceXP Software as kernel ([www.conferencexp.net](http://www.conferencexp.net))
- “Physical” Classroom
  - A computer room with enough communication resources
  - 2 projectors
  - Video Cameras and microphones

## Course Teaching Methodology II

- “Official” Student
  - A Web /IP Camera (even if it is not compulsory)
  - An Audio Device (Microphone, headphones etc..)
  - The PC Desktop
- Physical Student
  - Present in the virtual classroom through her/his assignment to a PC
  - **OBS!** - Must speak through the microphone of the computer or of the room
  - Uses his/her PC Desktop to work
- “Official” Teacher
  - WebCam and Audio devices in my PC
  - Presentation to work with in my PC
  - Shared Applications in my PC
  - Videos to stream in my PC
  - The whiteboard in my PC

## Course Teaching Methodology III

- Lessons are recorded
  - All the virtual classroom activities are recorded
  - The lessons will be available for students through a Lessons Server
  - To be used by students as reinforce/working materials
  - The students WILL NOT be recorded
- Access to the Virtual Classroom
  - Students can access to the Virtual Classroom from their PCs (at home: we would have to test it )
- Exercises
  - The exercises will be asked to be in wmv (video) format
    - Recorded by your own methods (camtasia, etc.)
    - Recorded at the University (Video-conference rooms)
- Possible test of completely distributed audience using all the tools of the system . The tutorials ??

## Used HW - SW : Teacher

- My Own Laptop. HP Compac 8510p 2Gb Ram
  - Conference XP
    - [www.conferencexp.net](http://www.conferencexp.net)
    - 300 Kbits / 2 Seconds
  - Tight VNC Server and Client (Used through a VPN)
    - [www.tightvnc.com](http://www.tightvnc.com)
  - Pidgin (Jabber) Chat environment
  - Software Reuser CASE Tool
    - [www.reusecompany.com](http://www.reusecompany.com)
  - Microsoft Visual Studio 2005
    - [www.microsoft.com](http://www.microsoft.com)
  - Microsoft Paint
  - Logitech WebCAM (Quick CAM)
  - Headphones and Microphone

## My personal “classroom”



## Used Architecture : SW

- Collaboration Software ConferenceXP suite (Microsoft)
  - Audio/video
  - Desktop
  - Power-Point
  - Recorded videos (windows media format)
  - IE
  - recording of all these elements
- Tight VNC Server and Client (Used through a VPN)
  - [www.tightvnc.com](http://www.tightvnc.com)
- Tight VNC Server and client (remote class)
- IM system: Pidgin (Jabber) Chat environment

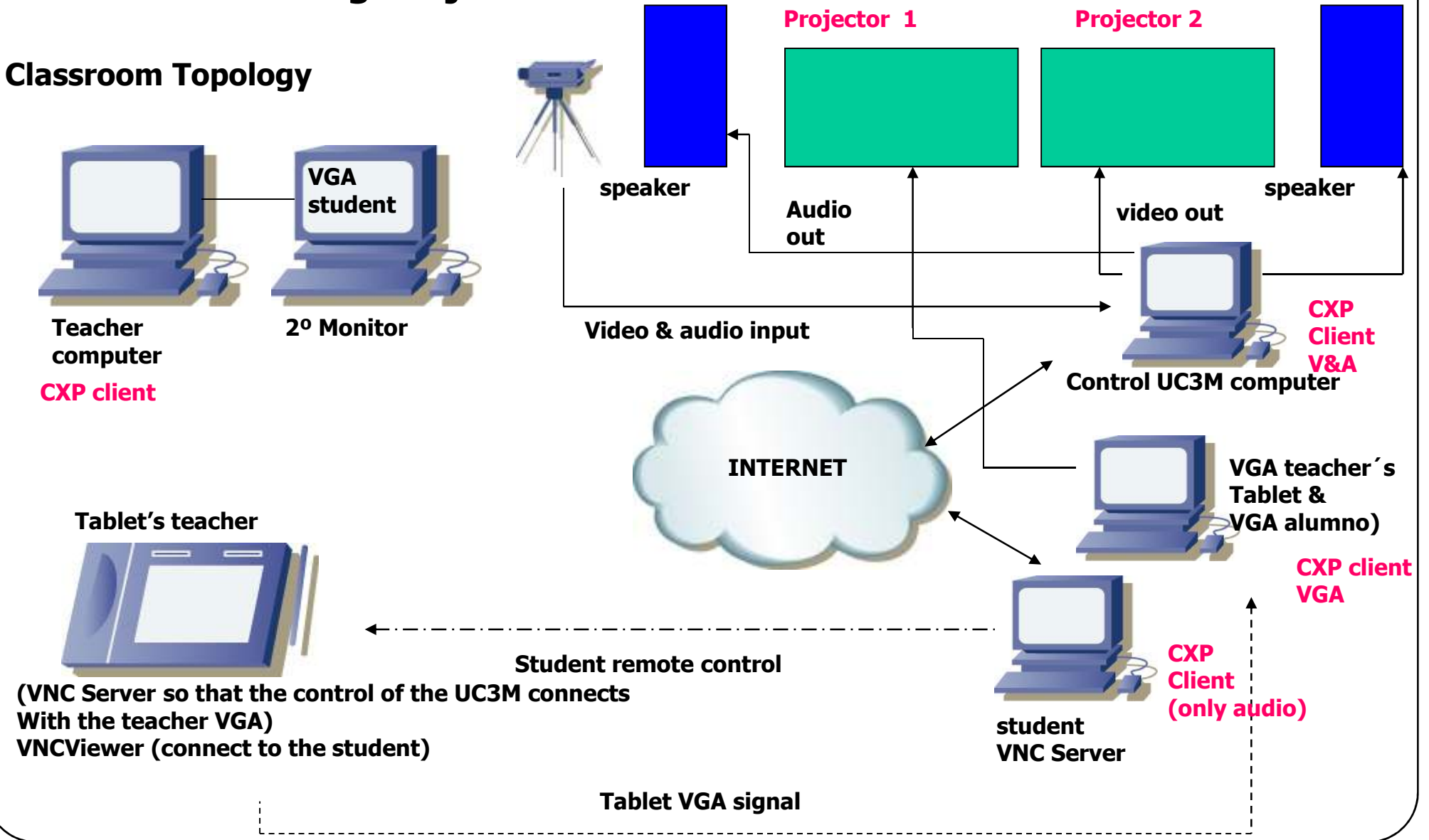
## Used Architecture : HW control

- 1 Codec CXP: capture and display video and audio
- 1 Codec CXP: capture and display VGA teacher & students
- 1 CXP client: codec CXP session in windows media
- 1 Codec WM: classes live recording
- CXP Server
  - Virtual rooms (venues)
  - Reflector (networks without multicast support)
  - Recording all streams (CXP format)
- audio-visual equipment
  - Audio and video mixer control
  - 2 projectors
  - 2 wireless microphones handle
  - 1 video camera



# Virtual Teaching Project

## Classroom Topology



## Not academic Topics: Teacher

- Completely different teaching environment
  - Do not listen to the students
  - Want to see them all
  - A lot of resources available that make the class more interesting
  - Not possible to move
  
- Risk for Possibility to “switch off” in the middle of the lesson
  
- Need to understand the technology behind the process
  
- It has taken me a bit more effort to prepare the classes (first time)

## Not academic Topics: Student

- He/she feels threaten by the environment
  - Few of them didn't come to the lessons because of recording
- Have started to “like” the available possibilities
  - Have downloaded the lessons during the course
  - Seem to like to record their own exercises.
- Some of them Have shown self confidence problems
- Have presented possible problems with recording them
  - More based on self confidence problems than something else
- As soon as they see themselves in the screen they behave very well

## My Impressions

- The experience has been Great!!!!
- It is worth it
- It can save a lot of money in high level courses
- The possibilities for creating course materials are enormous
- The resources available for the teacher are also enormous
- I have changed the fundamentals of the student works.
  - They had to present videos together with the documents
- We should have to think in creating a video- section in the library.

## Possible Improvements

- I feel too much dependence on the Audiovisuals human Stuff.
  - They are great people, helpful but... indispensable. Without them => no classes.
- I would have liked to have cameras for seen all the classroom
- I would have liked to control the cameras myself
- I would have liked table PCs at the students side
- I would have liked the students to have microphones and headphones
- I would like post-lessons editing help
  - I think that “cleaning-up” activities would be very appreciated.

## Hands at work

- Let's see how it works.....

[http://marge.uc3m.es/software\\_eng2/](http://marge.uc3m.es/software_eng2/)