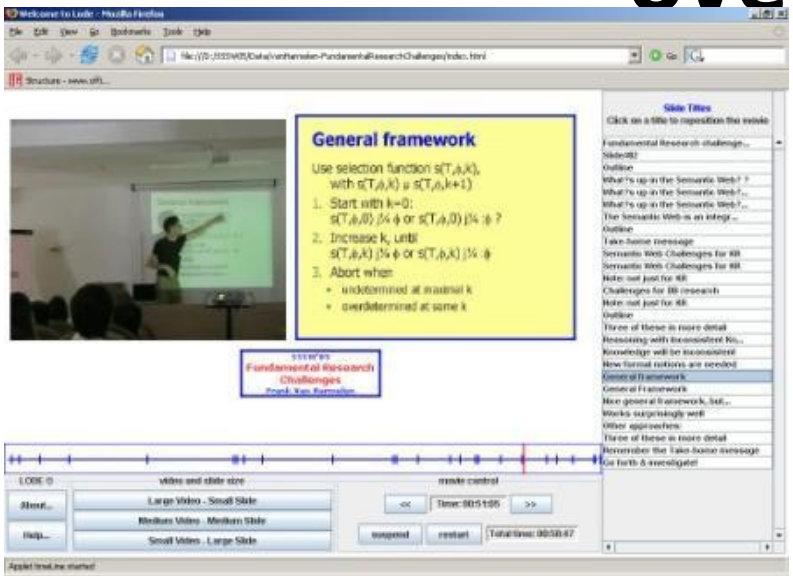
# Research on Videolectures

# Lectures On DEmand: a system for delivering traditional lectures over the Web.




Marco Ronchetti
Dipartim. Informatica e Telecomunicazioni
Università di Trento
Italy

# What do we need e-learning for?

- Help traditional students
- Support remote students
- Make some activity faster
  - e.g. semi-automatically grading tests
- Change the way we teach
  - Make it more collaborative
- Create a business
  - Get new markets (e.g. Athabasca)
  - Sell content (e.g. SCORM lectures)

# Traditional and remote students: how?

**Traditional lecturing is dead.**

- The lecture model is under attack by people proposing learner centered learning
- E-learning is an opportunity for a change
- However…

# Traditional and remote students: how?

… what is going on in *your classroom?*

At our place, we sometimes use a blended approach, much stuff is available through the net,

but the classroom is still there…

Can we make it any better, while the old paradigm still survives?

# Breaking the space-temporal unit

Can we free the student from

spatial and temporal constraints?

Classical solutions:

- Paper-based learning material
- VHS cassettes (and TV or satellite broadcasting)

Video distribution through the Internet was not feasible (at least in Europe) until recently

**Video is costly . Video is boring!**

# Videos for teaching?

- TV-based
  - VHS cassettes
  - TV broadcasting of frontal lectures
- Computer network based
  - 1998 Heyes (USA to France)

# Our first experiment

We used e-presence on a whole first-year course (48 hours, Object Oriented Programming for Computer Science)

- through the Internet (webcasting)
- through the Internet (asynchronous)
- through the Internet (download)
- offline (through a set of 6 CDs or a single DVD).

# Student feedback

**Enthusiastic**.

*We were "forced" to extend the experiment to a second course!*

75% anticipated using the system ouen or very ouen

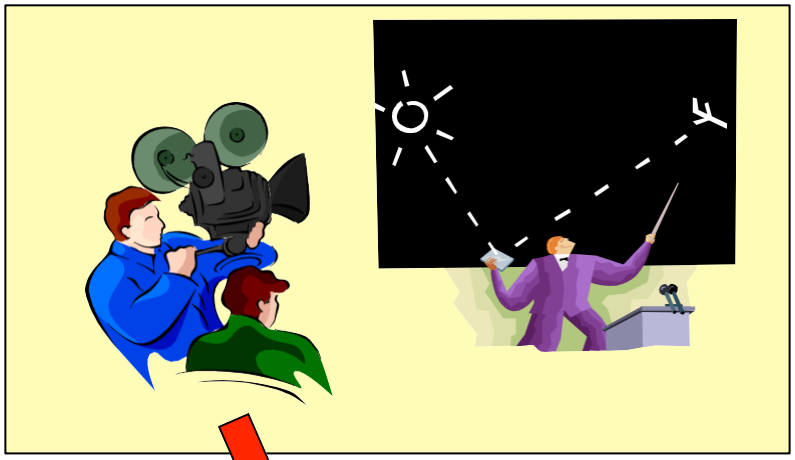
| students who… | total | 1st exam (45 stud.) | 2nd exam (23 stud.) |
|---|---|---|---|
| …used the system to review at least one lecture | 63% | 51% | 87% |
| …followed the course completely off-line | 5% | 6% | 4% |

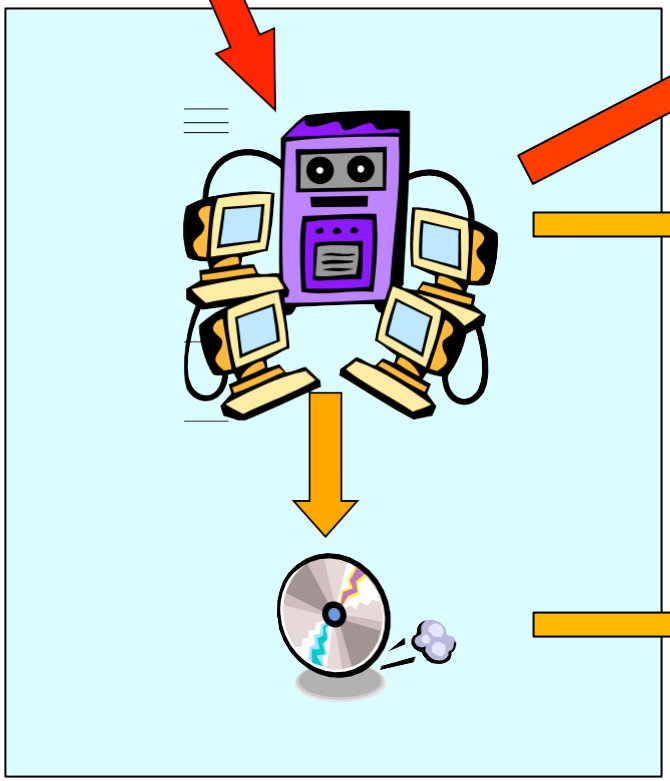
# Advantages from student's perspective

- Better time management:
  - ability to recover lectures lost due to forced absence (illness, work or other time-frame incompatibility);
  - ability to better organize their time, deciding not to be present at some lecture (elective absence);
- Better understanding
  - review some critical point (cases of poor understanding of a section due to concentration drop, excessive speed in an explanation or intrinsic difficulty);
  - ability to check the correctness of notes taken during a lecture;

# Other advantages

- Miscellaneous
  - perception by the student of a better service provided by the university;
  - support foreign (italian) students who might have difficulties with the Italian (English) language;
  - enrichment of the e-learning porxolio;
  - possibility for the teacher to view himself;
  - possibility to reuse lectures (across time, or in different contexts!)





Synchronous (webcast)

Asynchronous
(On line, or download)

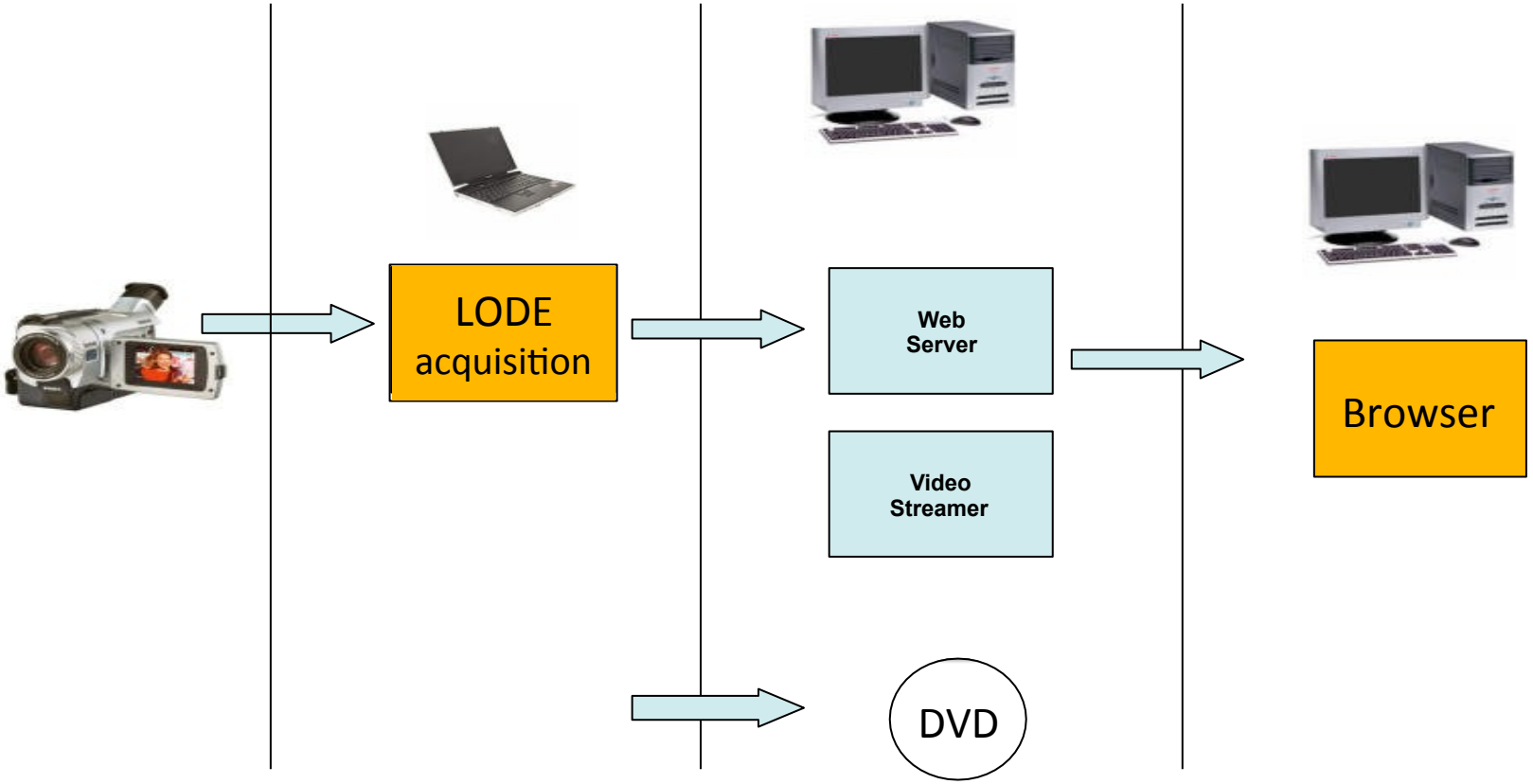
Asynchronous(CD - DVD)

# Our requirements

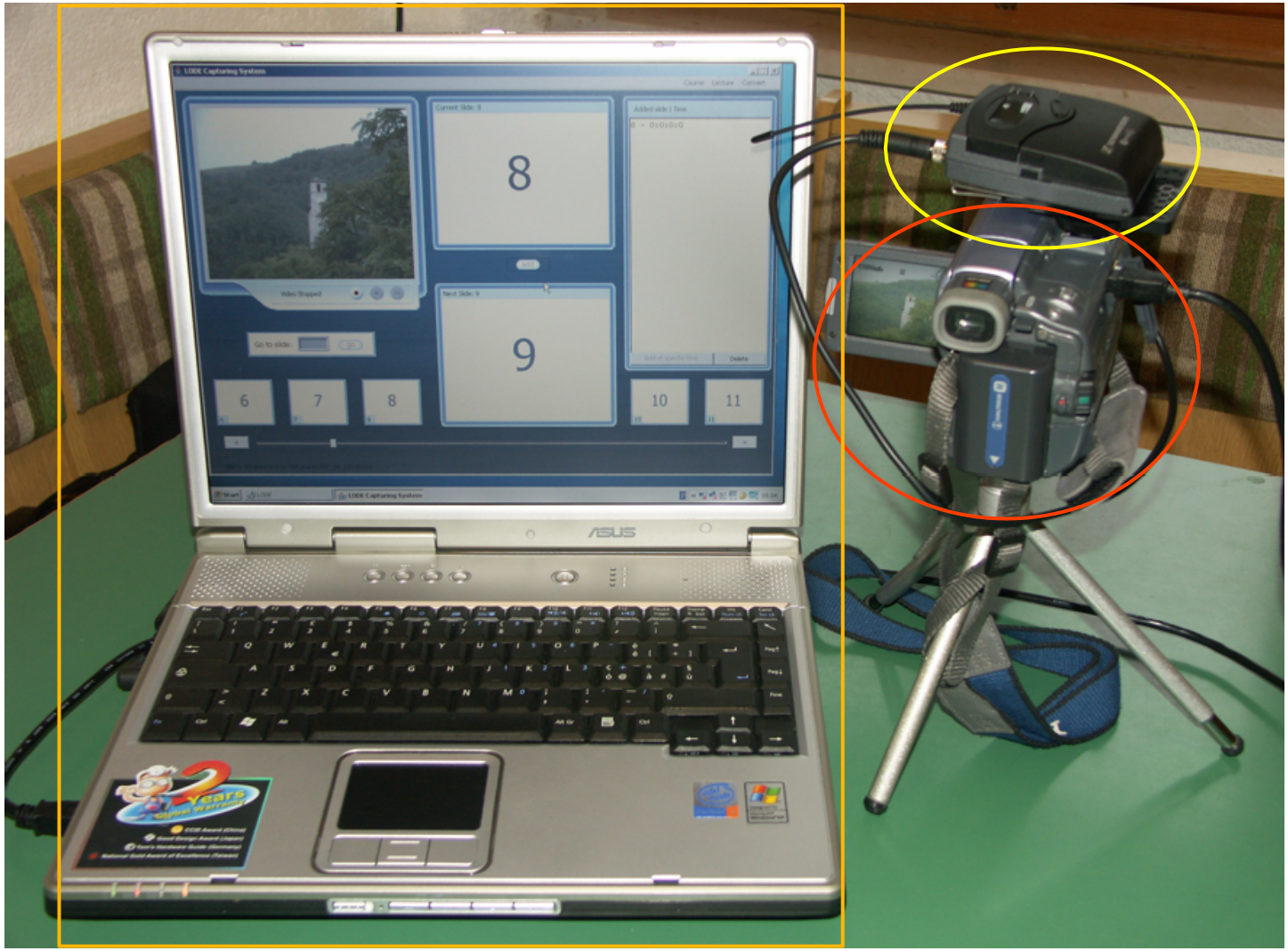
- impact on lectures should be minimal;

- production costs should be minimal, so as to allow scaling the approach to most courses.
  - Set-up must be lightweight!
  - Operations must be simple (low level skills!)
  - Post-processing operations must be light (i.e. almost automatic), and not require much work

# System Architecture



# Acquisition setup



# Detail of camera and mic receiver

# Assessing costs: initial costs:

- Souware acquisition
  - (almost) 0 Euro (QuickTime, Java, Javascript, Darwin Streaming Server, open source components, our sw + one non-free component)
- Hardware acquisition:
  - SERVER 1000 Euro
  - ACQUISITION STATION 1400-2400 Euro
    - 1 Laptop (Euro 800-1500)
    - 1 Digital Camera (Euro 400)
    - 1 Radio Microphone (Euro 200-500)

# Assessing costs: running costs

- setting up the system before lectures (10 min.)
- running the system during the lecture (2 hours)
- removing the system auer lectures (5 minutes)
- starting the post-processing: 5 minutes. The post processing would then go by itself for approx. 1 hours for producing a streams of 1 hour.
- ending the post-processing (uploading the video on the web site, producing the master CD): 15 minutes.

=> 35 minutes extra work for a 2 hours lecture

# Samples of the evolution

- http://latemar.science.unitn.it/Lode/Programmazione2_2005-06/15/content/start.html
- http://latemar.science.unitn.it/LODE/Programmazione2_2009/Programmazione2_2009_index.html
- http://latemar.science.unitn.it/itunes/archive/ScienzeCognitive/AnalisiMatematica10-11/Defranceschi-13-101021.mp4
- http://latemar.science.unitn.it:3000/lecture.html?content=lectures/LinguaggiProgrammazione/Lezione17
- http://latemar.science.unitn.it/LODE/LinguaggiDiProgrammazione/02-7-Collections/
- http://latemar.science.unitn.it/cad/lecture.html?content=lectures/Analisi1/1219


500 Euro totali


cittàeducante

# Once you have the videos…

- Flipped classroom. (2009)

- Scaffolding

# Using analytics

# Video publication

- Behind the scenes
- No emphasis
- No advertisement
- Just a small link on the course web site

Who are our "users"?
How do they behave?

- Look at the download logs
  -No hints about provenance

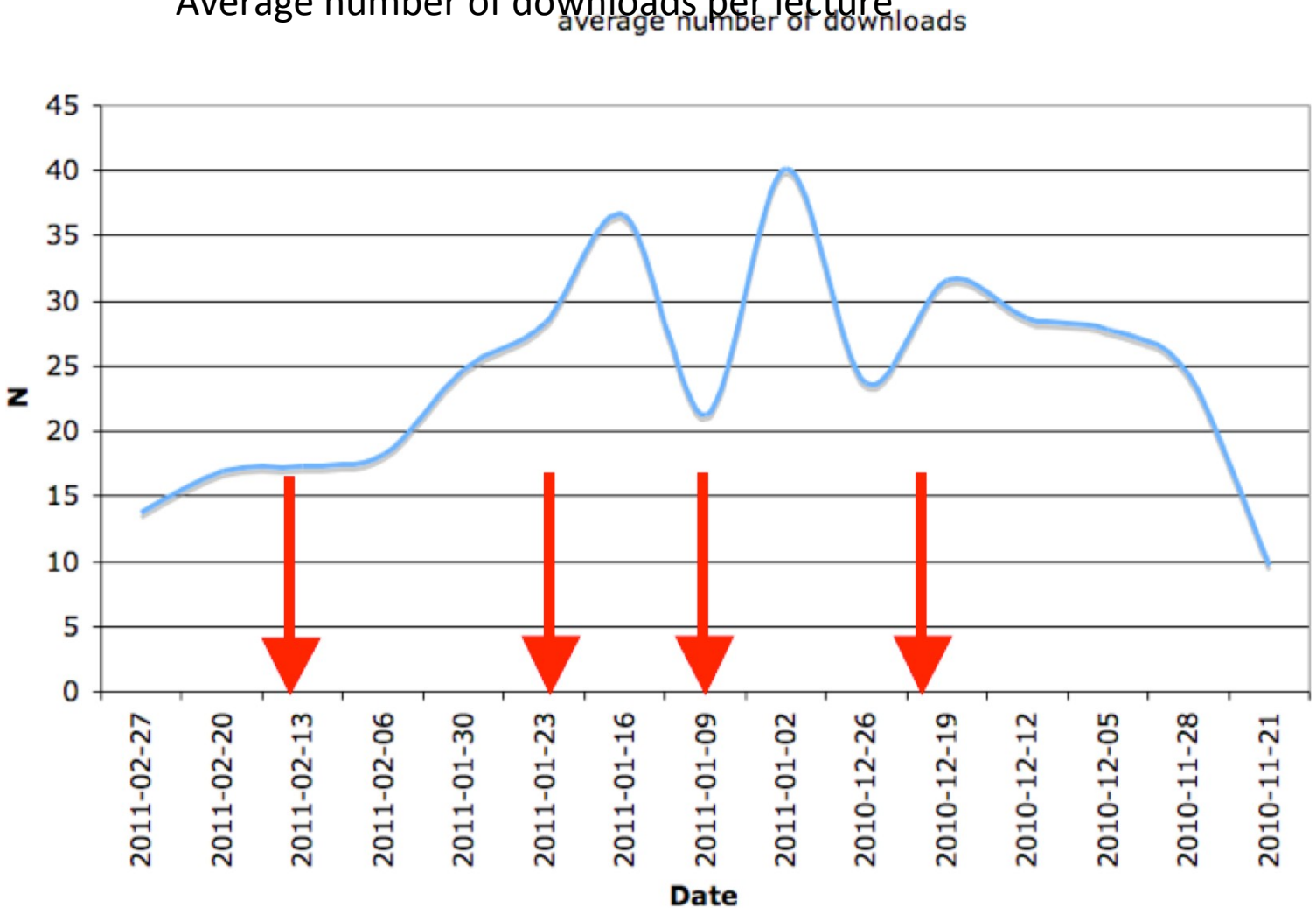
- Ask "our" students

# Download statistics
# - row numbers -

- Total 11.385 downloads (in the 15 weeks observation period)
- Over 15 weeks: 345 download per lecture
- Average of 23 downoad per lecture per week

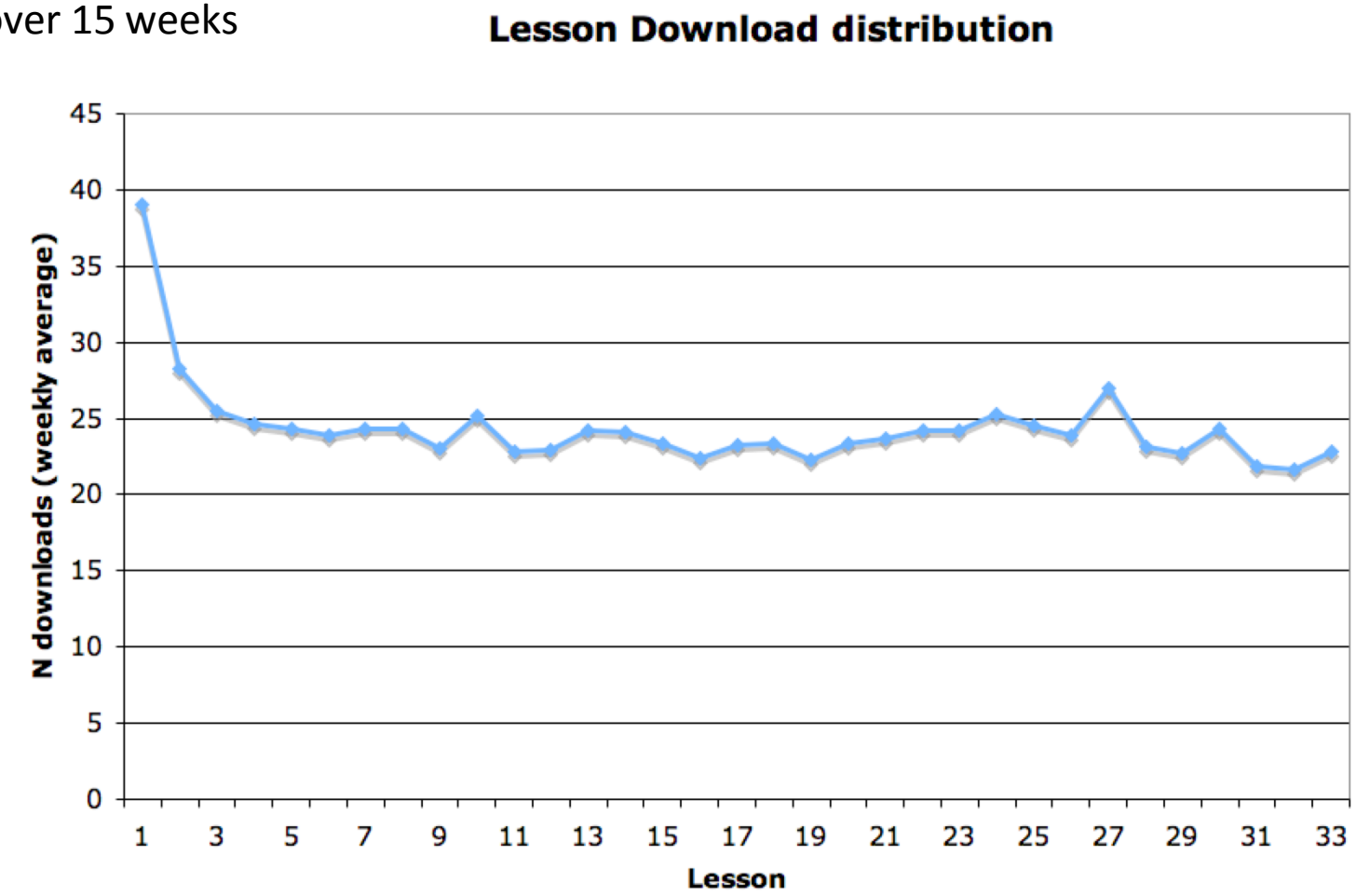
# Time distribution of downloads

Average number of downloads per lecture



# Do "students" take the entire course?

Stats over 15 weeks



# Students survey

- Sample: 91 students passing the exam between January and June (65 responded, 71%)


Anonymous, free,
web data collection
by invitation

- Used the video: 25%
- Did not know the video were available: 38%
- Decided not to use the videos: 37%

# Students survey

- Are videos useful? Yes 84%
- Would you like other courses to use them? Yes 79%
- The format allows following well the lecture? Yes 53%, No 11%

# How much did the videos help you passing the exam?

- Little/very litte 38%
- Much/very much 38%

# Survey - type of usage

- Did you watch most of the lectures? Yes 50%
- Did you watch some lecture more than once? Yes 50%
- Did you use Desktop-laptop? 100%
- Did you use iPhone-iPad? 0%

# Survey - type of usage

- Did you watch some lecture from beginning to end? Yes 38%
- Did you make breaks for resting? Yes 19%
- Did you make breaks for doing exercises? Yes 31%
- Did you watch only some important part of some lecture? Yes 31%
- Did you watch more than once some lecture? Yes 53%

# Students survey

- In general, would you stop going to class if you had the videos?

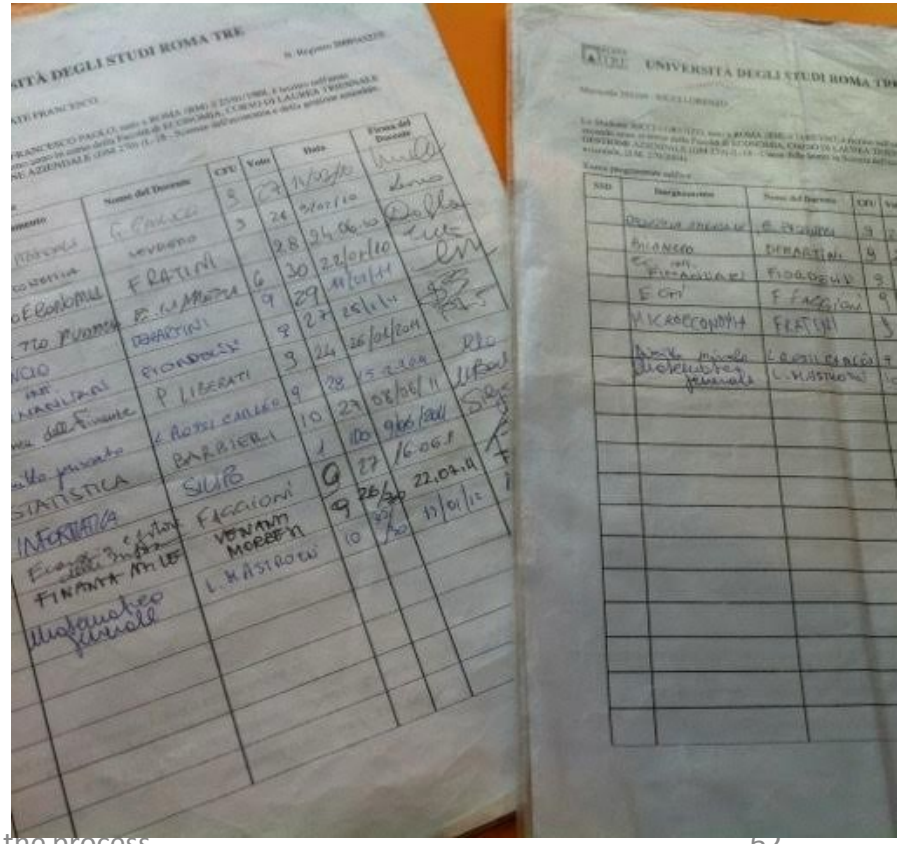
- No 47%
- Yes 12%
- Depends on the type and quality of the lectures 33%
- Depends on the quality of the videos 8%

# Where did the other students come from?

- Almost 350 downloads (per lecture) over the first 15 weeks, and going…
- Anectodal evidence

# Gentile Professoressa…

Gentile Professoressa,
Dopo mesi di incubi, ci tenevamo a dirLe che anche grazie alle sue
preziosissime lezioni su itunes siamo finalmente riusciti a superare
l'esame di matematica generale.
La ringraziamo del materiale messo a nostra disposizione e le
alleghiamo la foto dei nostri due statini a testimonianza.

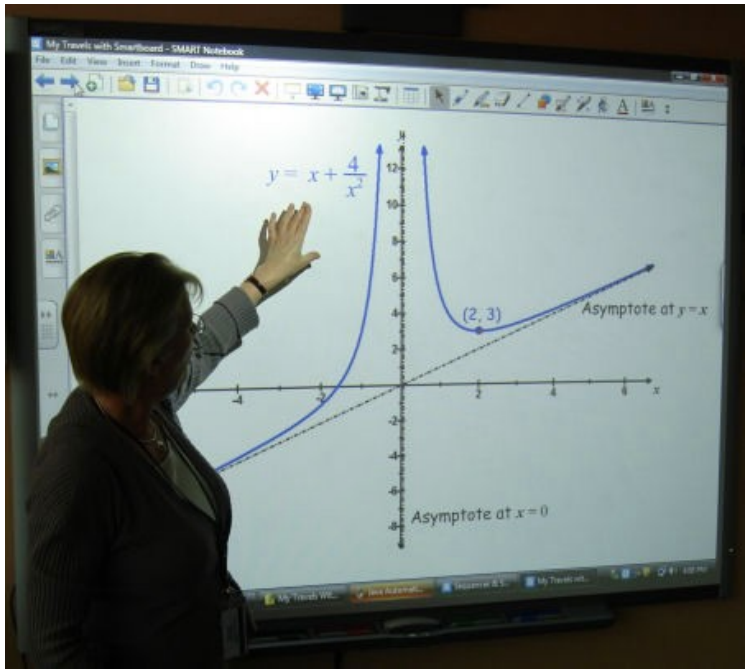


# The next step:
# Videolecture Annotation

# A question

Is giving out lecture material a good thing?


Or…




IWB

# A question

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Or should we encourage students to take notes?

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Is giving out lecture material a good thing?

Should we encourage students to take notes?

Or should we attempt a mixed approach?

Taking notes…

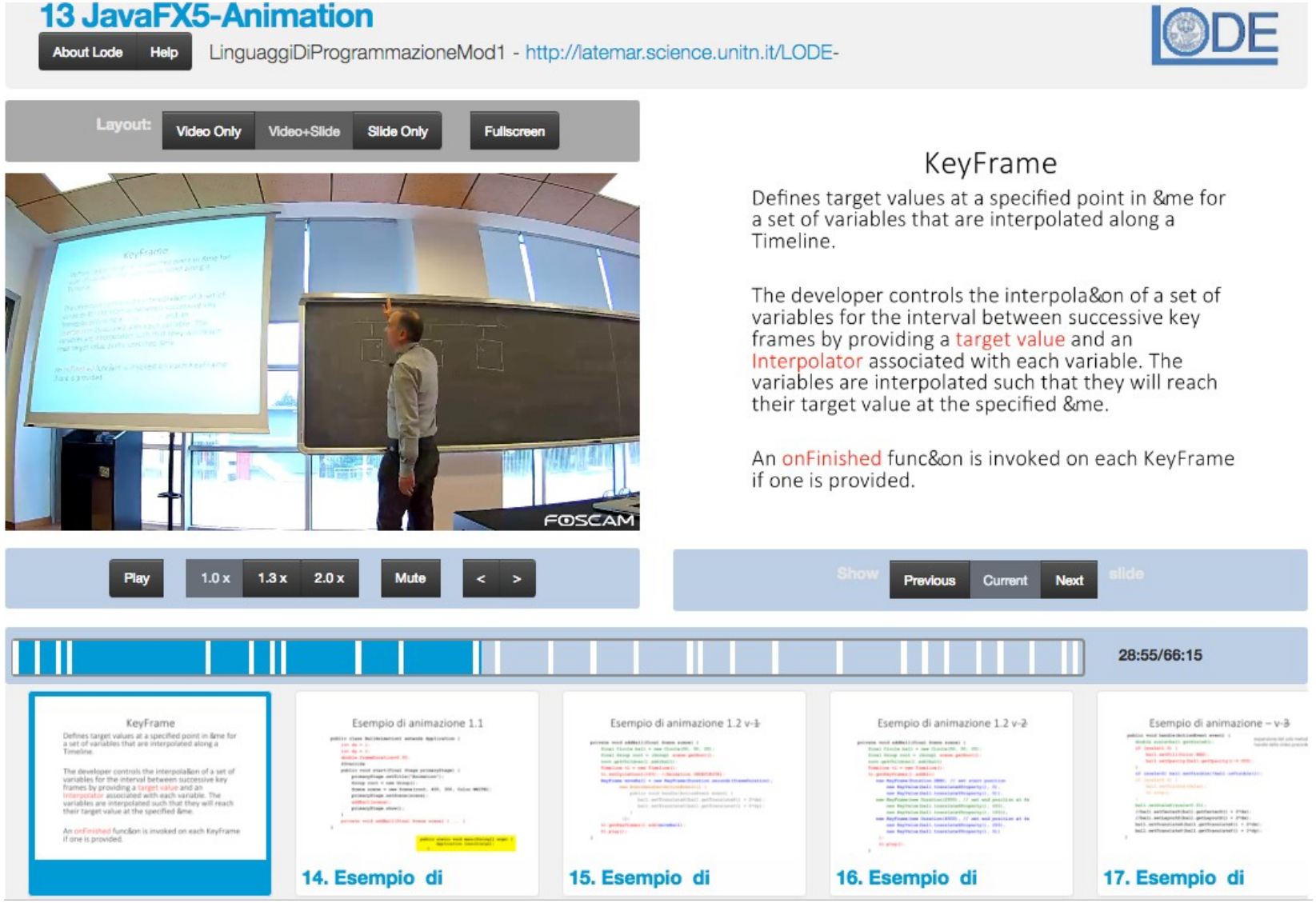
# Helps

# Or

# Hinders

# Understanding?

# An extreme: giving out the lecture itself…

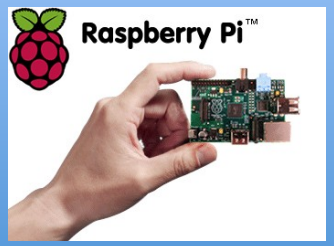



And YES, we do believe in the usefulness of videos!

# LodeBox



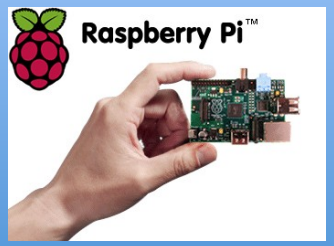
LODEBOX




# LodeBox



LODEBOX




# … also if it is not PPT based

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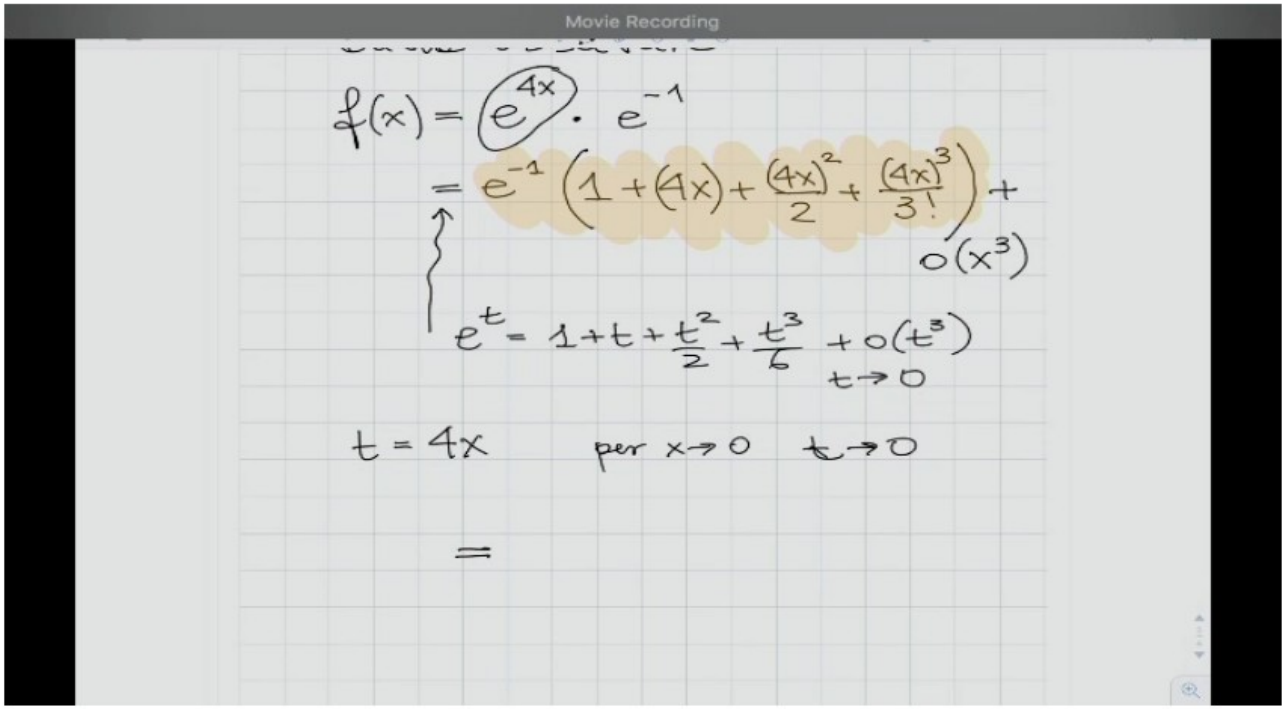
LODE

1.0x 1.3x 2.0x




28:32/01:40

# But…

If you have videos, what is the point of taking notes?

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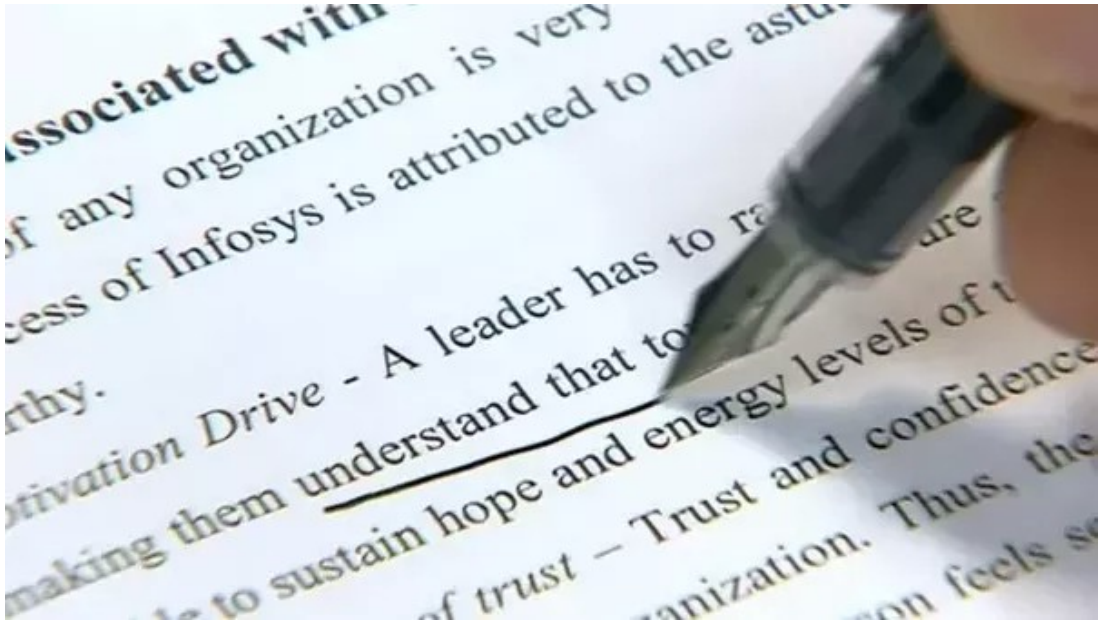
Well, why do we underline books? (or take notes in margin)



# But…

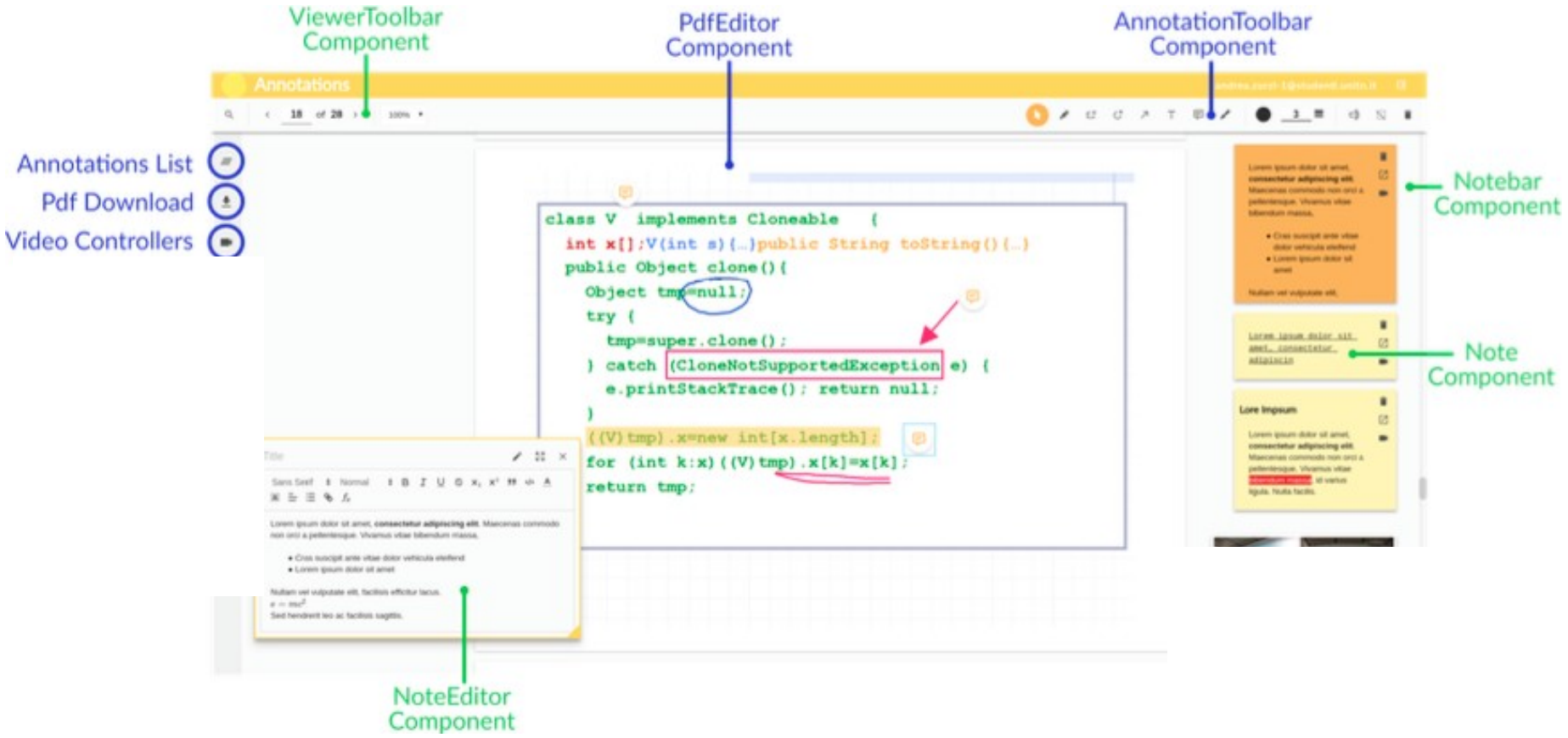
If you have videos, what is the point of taking notes?

Well, why do we underline books? (or take notes in margin)

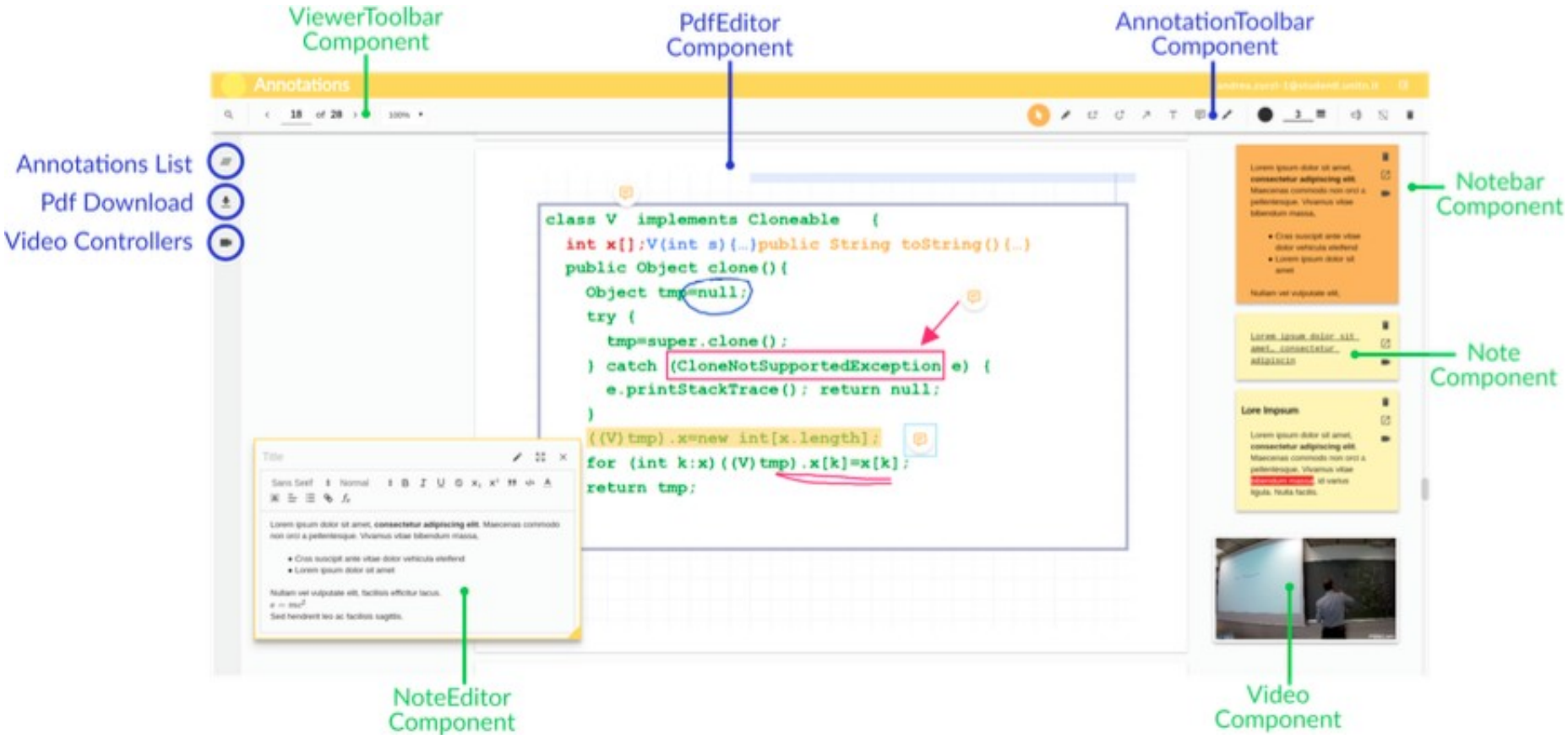
- Give relevance
- refind

# Can we annotate videolectures?
# How?

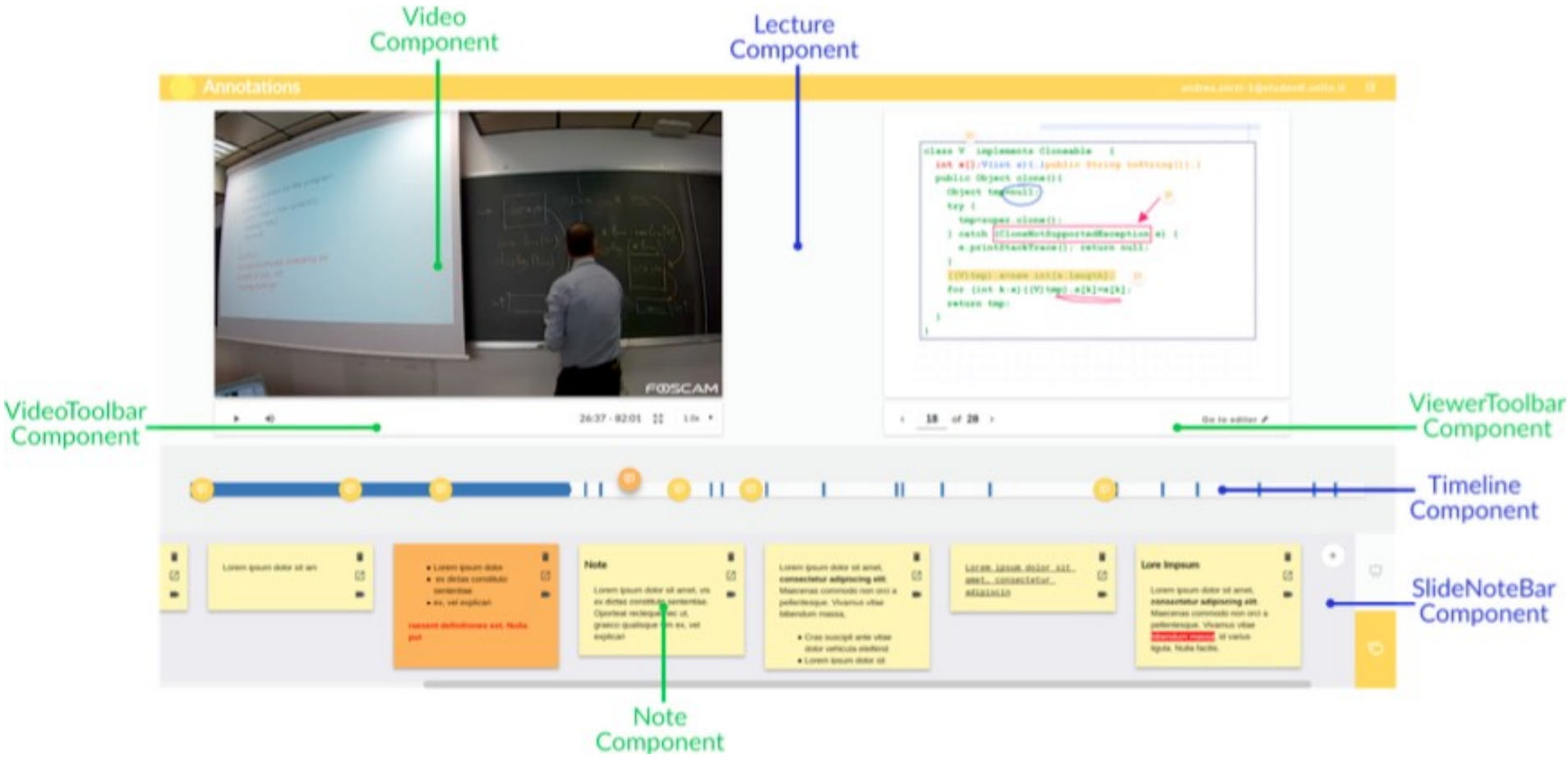
# Our prototype: in class



# Our prototype: at home



# Reviewing annotation



# Advantages

- Combining “passive” and “active” approach
- “Delta” annotations
- Quick jump to a point in the lecture (“refind”)

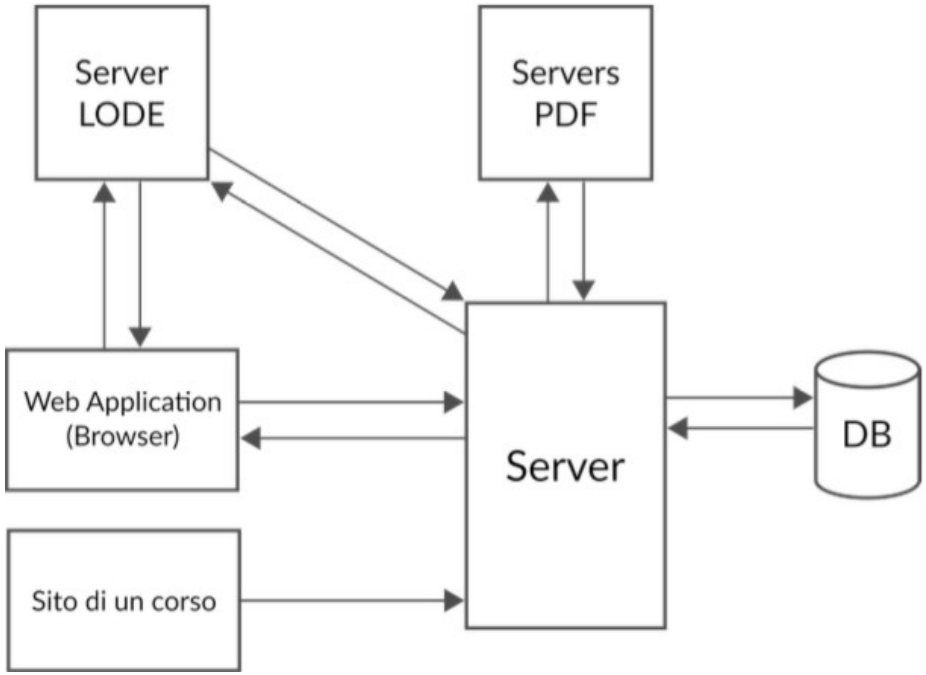
- Gather statistics (analytics)

- Share annotations with friends (possibly)

# Validation

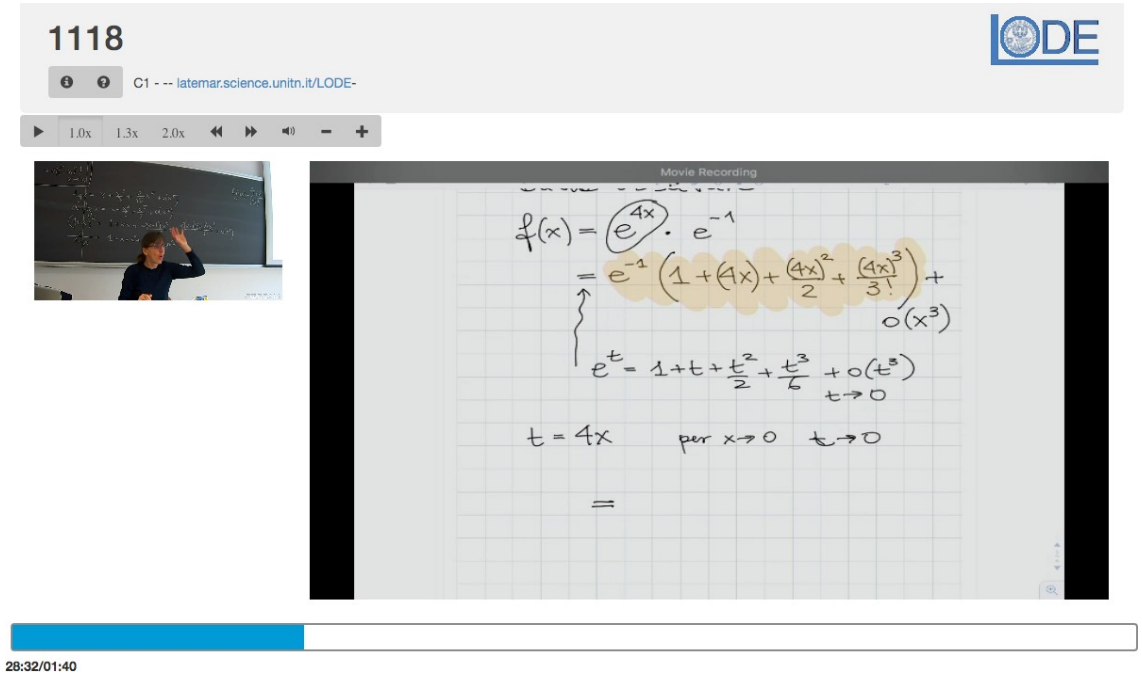
- Very little yet, but promising…
- Extended validation planned since next semester

# SW architecture



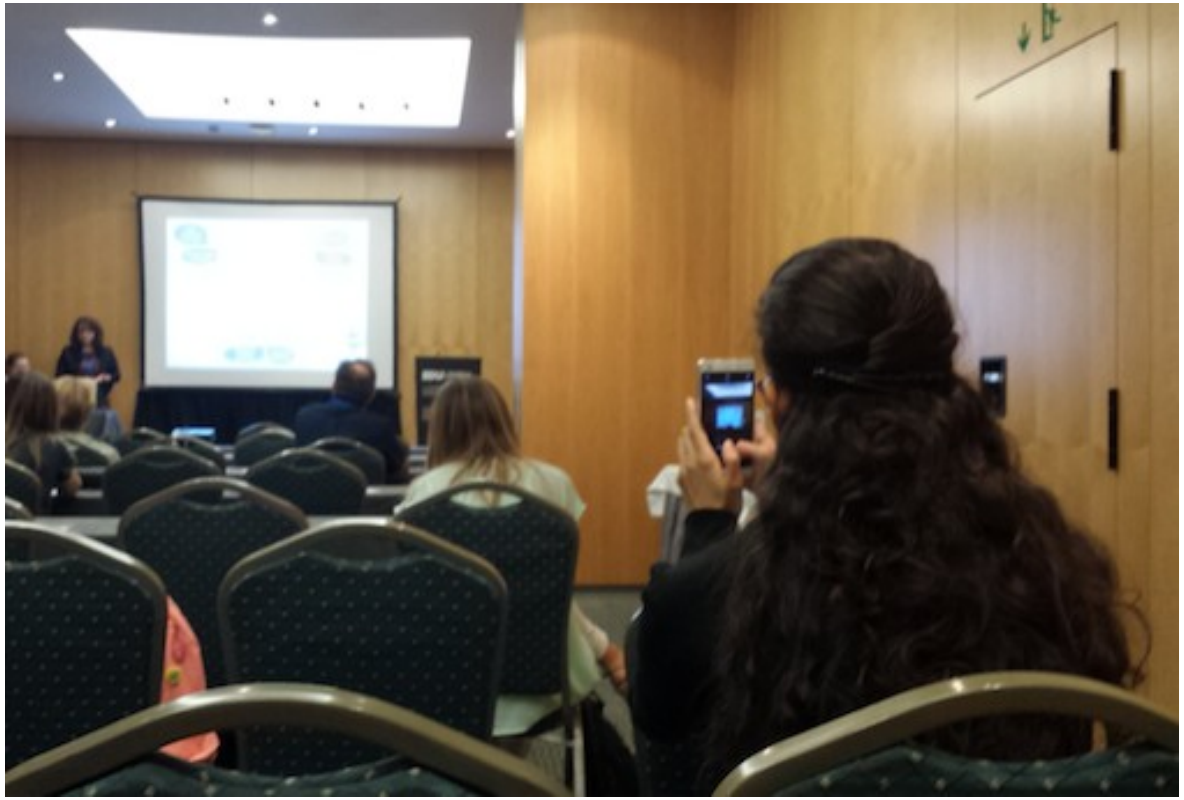
# Variants

- Pre-uploaded slides
- On the flight generated screenshots



# Scenarios

- What if you could capture the projected screen you're looking at?



# Scenarios

- What if you could capture the projected screen you're looking at?

- Avoid giving out the material!
- Students must (and will) create their own.
- Then they can share, if the want to