

The Safe Exam Browser

Innovative Open Source Software
for Online Examinations

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The Safe Exam Browser

- How to secure your exam computers
- What is the Safe Exam Browser (SEB)?
- SEB's advantages
- Examples
- Upcoming features

Questions to ask in the beginning

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 - > Online examinations
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Do you have the necessary resources?

Questions to ask in the beginning

- Which kind of examinations?
 - > Computer-based exams
 - > Online examinations
- Are special assessment computer rooms necessary?
Do you have the necessary resources?
 - > No
- How can you prevent manipulation, fraud, plagiarism and the obtaining of information from the Internet?

One possible answer ...

SEB
Safe
Exam
Browser



What is the Safe Exam Browser – SEB?

- Secured web browser application
- for conducting online examinations
- using learning management systems and web-based quiz/e-assessment systems
- available for free, open source

What is Safe Exam Browser – SEB doing?

SEB prevents

- opening any website
- switching to undesired applications
- operation system specific key combinations and functions
- quitting the secure browser anytime

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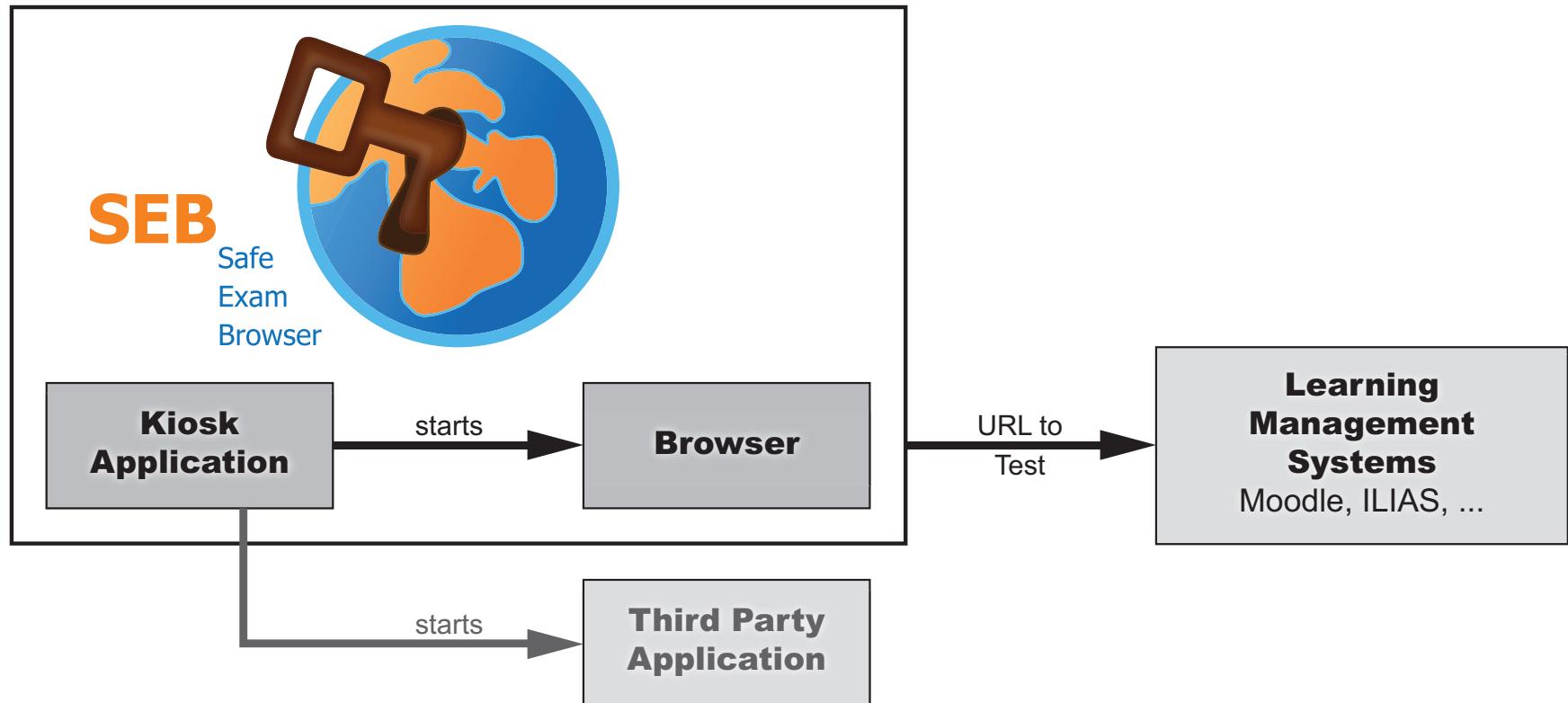
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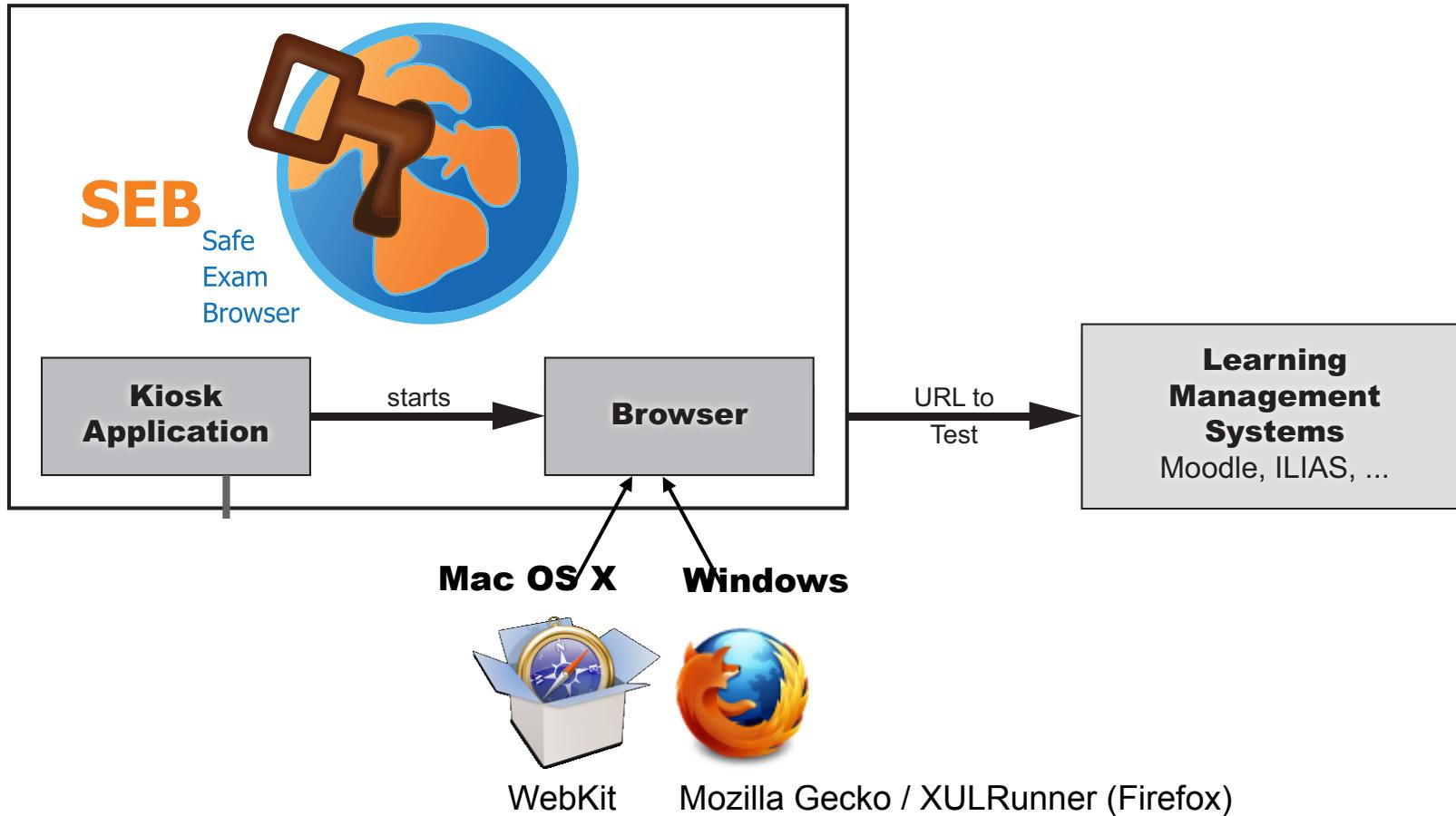
SEB allows

- connecting to web based learning management systems and web-based quiz/e-assessment systems
- use of selected third party applications during the examination

Architecture



The SEB-Browser



SEB's advantages

Application!

(vs. booting restricted OS)

SEB's advantages: Application

- Easy to install
- No complex administration of exam computers necessary
- No special network configuration necessary in the exam room

SEB's advantages: Application vs. booting special OS

- Don't have to create, test and regularly update special boot images
- Very good compatibility with a wide range of hardware
- Windows and Mac OS X **third party applications** can be used in parallel with the exam

Examples

Examples

- Examination in “Systematic Botany”: Standard question types plus subject-specific questions about images of plants in Herbar third party software
- Examination in "Biomedical Engineering": Spacially separated examinations/distance assessment
- Examination in "Informatics": Using Java-based SIOUX examination system started up in and secured by SEB

Upcoming features

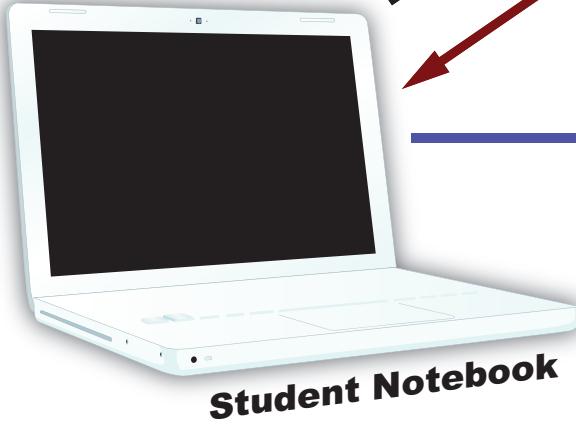
In project phase until April 2013

Examinations on students' personal computers

- Securing integrity of the SEB application
- Encrypted and signed individual configuration for each exam
- SEB server – a third component in addition to the examination computer and the LMS server would provide more security especially on unmanaged exam computers

SEB-Server

1) Student installs SEB



2) Student starts SEB, which connects to the SEB server

3) Student chooses exam from a list

4a) SEB Server sends SEB configuration, quiz URL and quiz token to SEB

5) SEB connects to the quiz. After validating the token, the exam can start

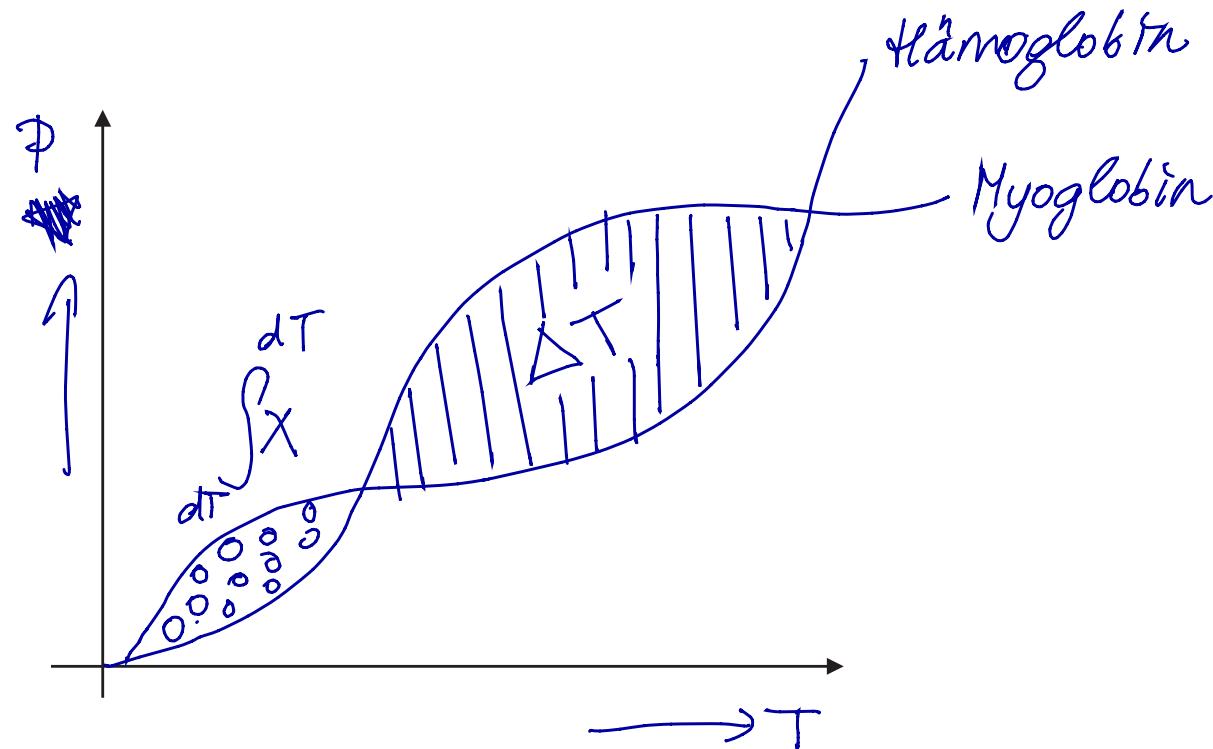


4b) SEB Server sends quiz token to LMS



Exams using tablet computers

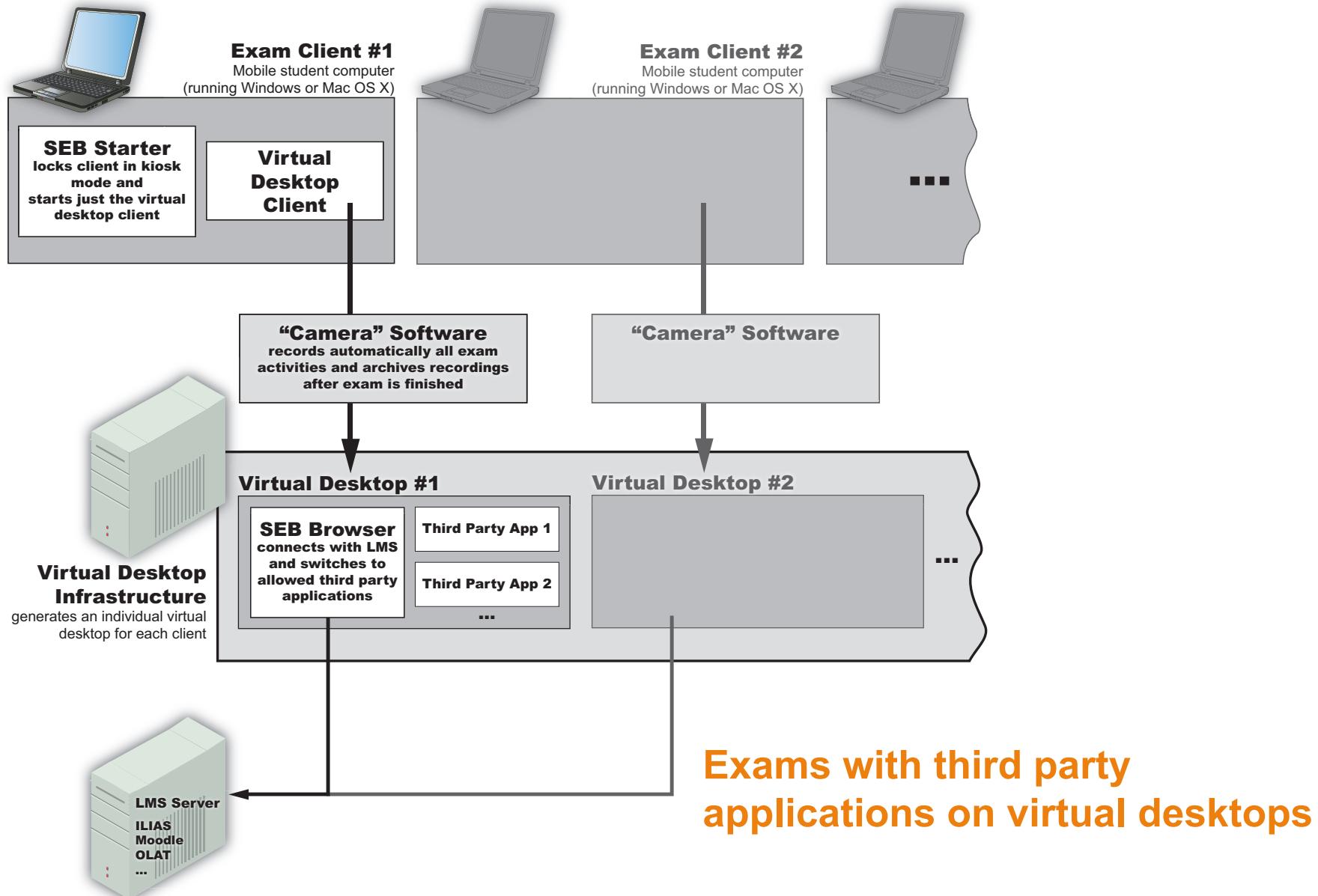
- 6) In unten stehendem Diagramm sollen Sauerstoff-Bindekurven von Myoglobin und Hämoglobin eingezeichnet werden. Beschriften Sie die Achsen des Diagramms (Name und Symbole der Parameter, Einheiten, keine absoluten Werte nötig). (2 Punkte)



Improved control when using third party applications

- **Problem:** Using additional applications during an exam is a challenge, particularly on unmanaged student computers
- Control over third party applications has to be improved

- **Solution:** Integrate a virtual desktop infrastructure (VDI) client software into an exam system based on SEB.
- SEB kiosk application secures exam clients
- SEB browser and third party applications are running in a virtual desktop



Thank you!

More information and download at
www.safeexambrowser.org