Using OERs, PERs, Blending And Flipping To Deliver A Computer Systems Module To Year 1 Students

By Michael O'Rourke, Lecturer, Faculty of Engineering and Informatics, Athlone Institute of Technology (AIT), Ireland
(email: miorourke@ait.ie)

Introduction

Computer Systems 1 is a common module for 1st year students in the Department of Electronics and informatics in AIT on Level 7 courses. The core teaching material for this module comes from the 'IT Essentials PC Hardware and Software' course which is part of a suite of ICT modules that the Cisco Networking Academy (Cisco, 2016) offers. Thus, the material is proprietary in nature, hence the acronym PER (Proprietary Educational Resource). The courseware is delivered online in lessons via the Cisco VLE that the student must enrol on. This material is supported by OERs (Open Educational Resources) in the form of videos that are freely available online. Examples of these OERs come from the Professor Messer (Messer, 2016) and Eli The Computer Guy (Etherton, 2016) websites.

The concept is that the student should read the material and watch the videos outside of the lecture time. The student class contact time is used to discuss and summarise the content of the lesson, watch some relevant videos and undertake lesson assessments online. The remainder of the student contact time is used for practical work associated with the module.

Key features of the project

- Online courseware provided by Cisco.
- Online assessment through the Cisco VLE.
- PowerPoint lesson summaries.
- Engagement analytics provided by the Cisco VLE.
- OERs provided by Professor Messer and Eli The Computer Guy websites.
- Moodle VLE used for additional support to bind student resources together e.g. PowerPoint presentations and videos.
- 50% of the class contact time is laboratory work (1.5 hours).
- Small class sizes; 20 students maximum at Year 1.
- 3 hours total class contact time per week (2 x 1.5 hours)
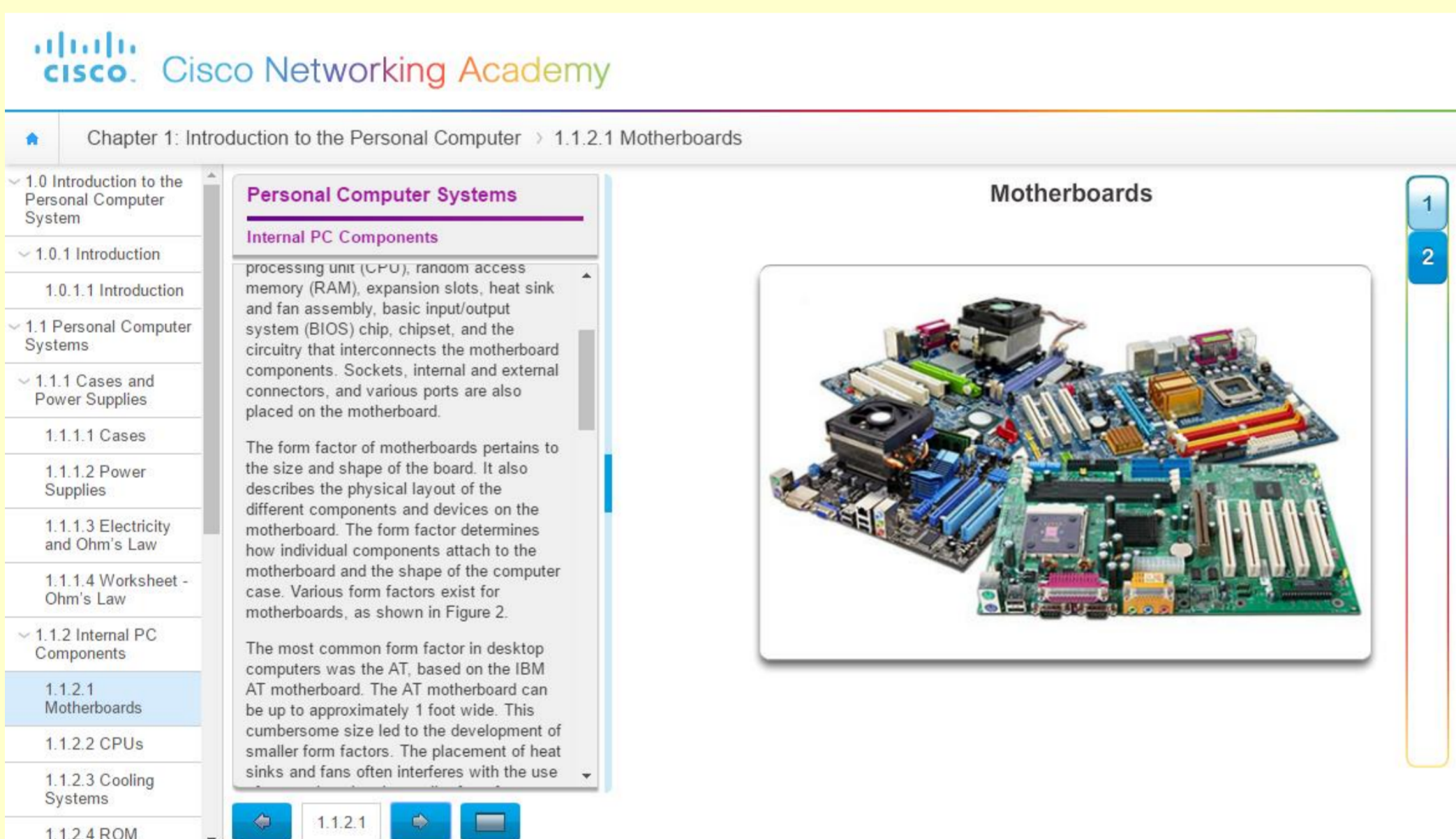
Student Resources

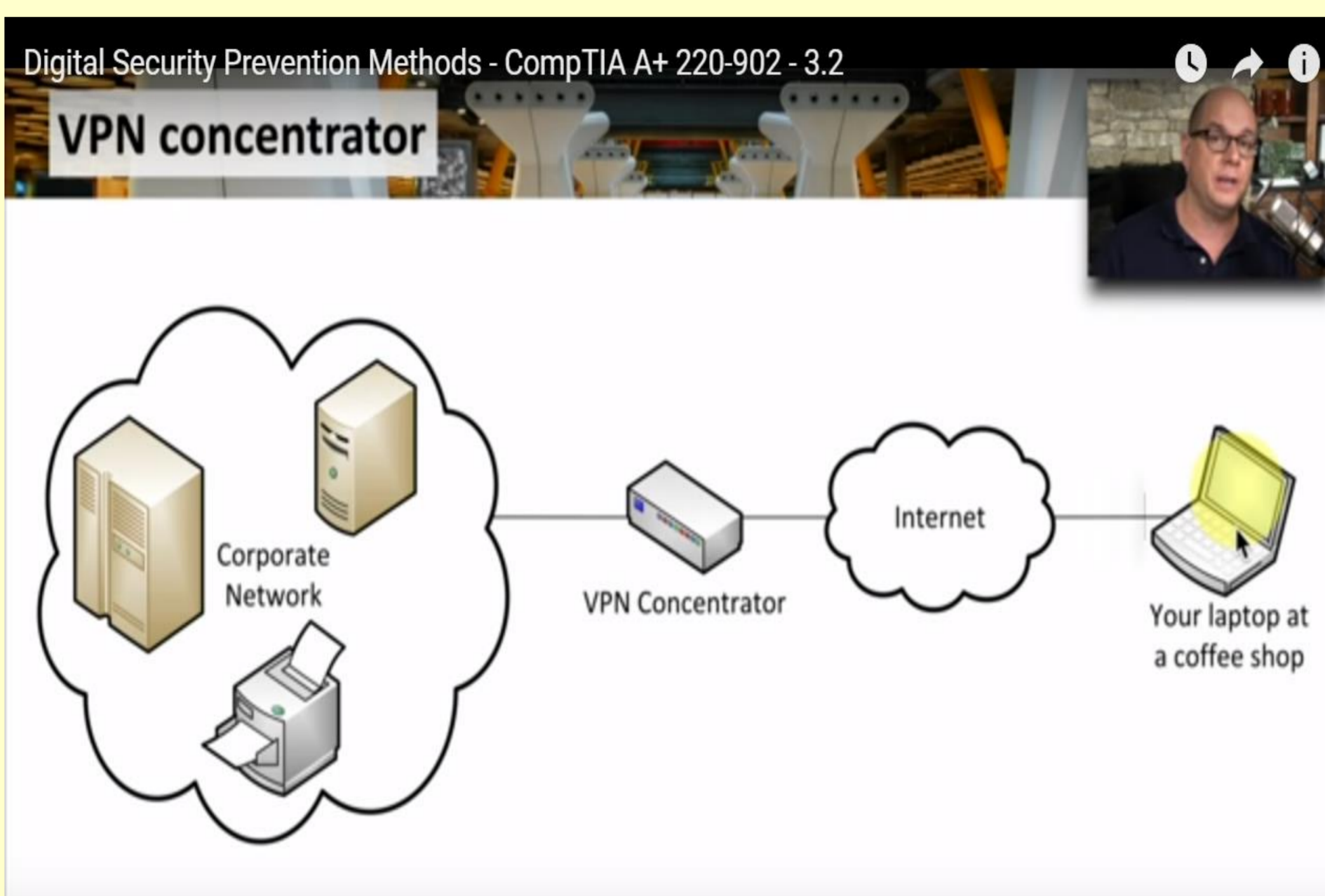Figure 1: Typical Cisco online material (PER)

Figure 2: Professor Messer video screen grab (OER)

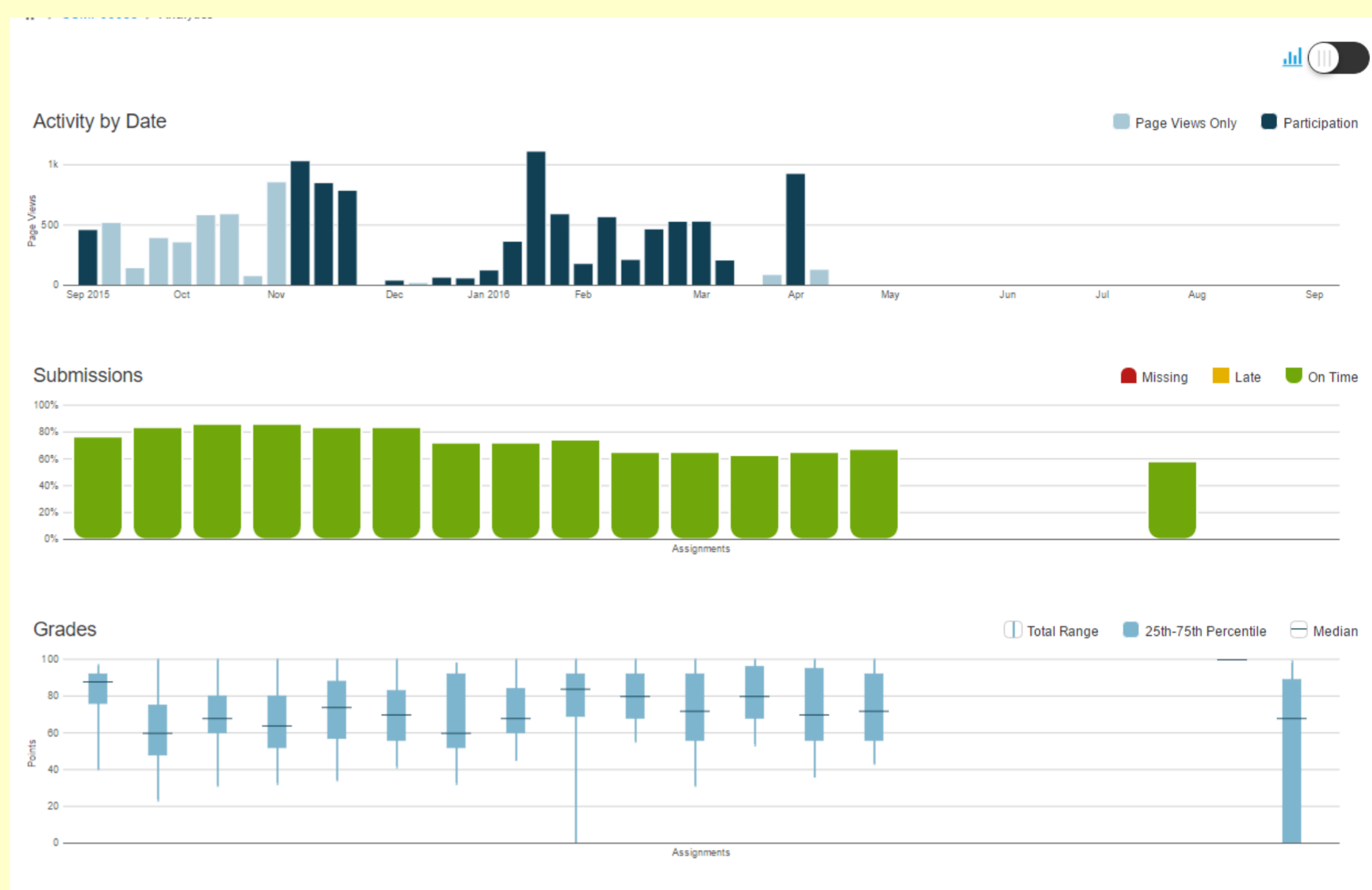## Module and Student Analytics

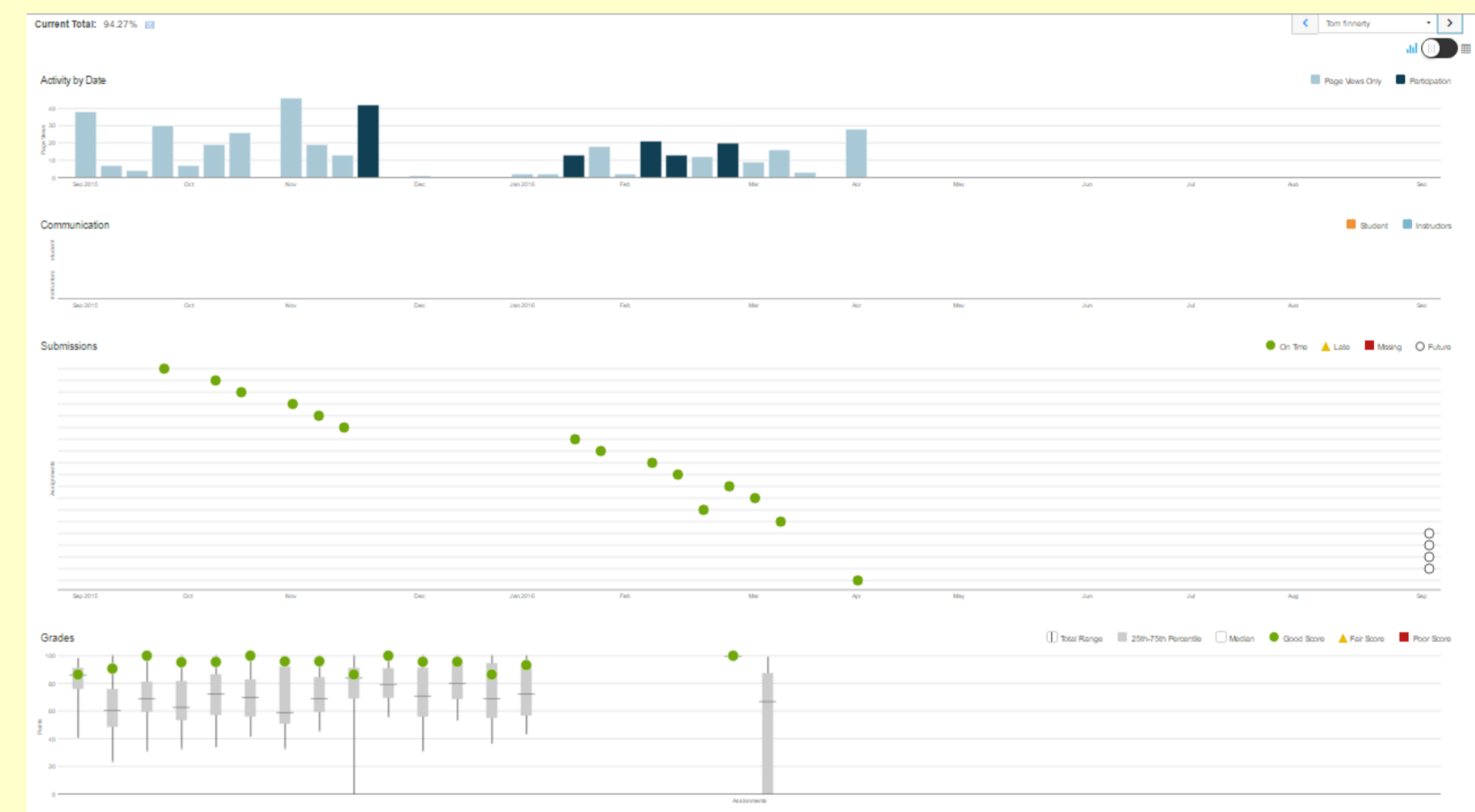Figure 3: Typical module analytics from the Cisco VLE

Figure 4: Typical student analytics from the Cisco VLE
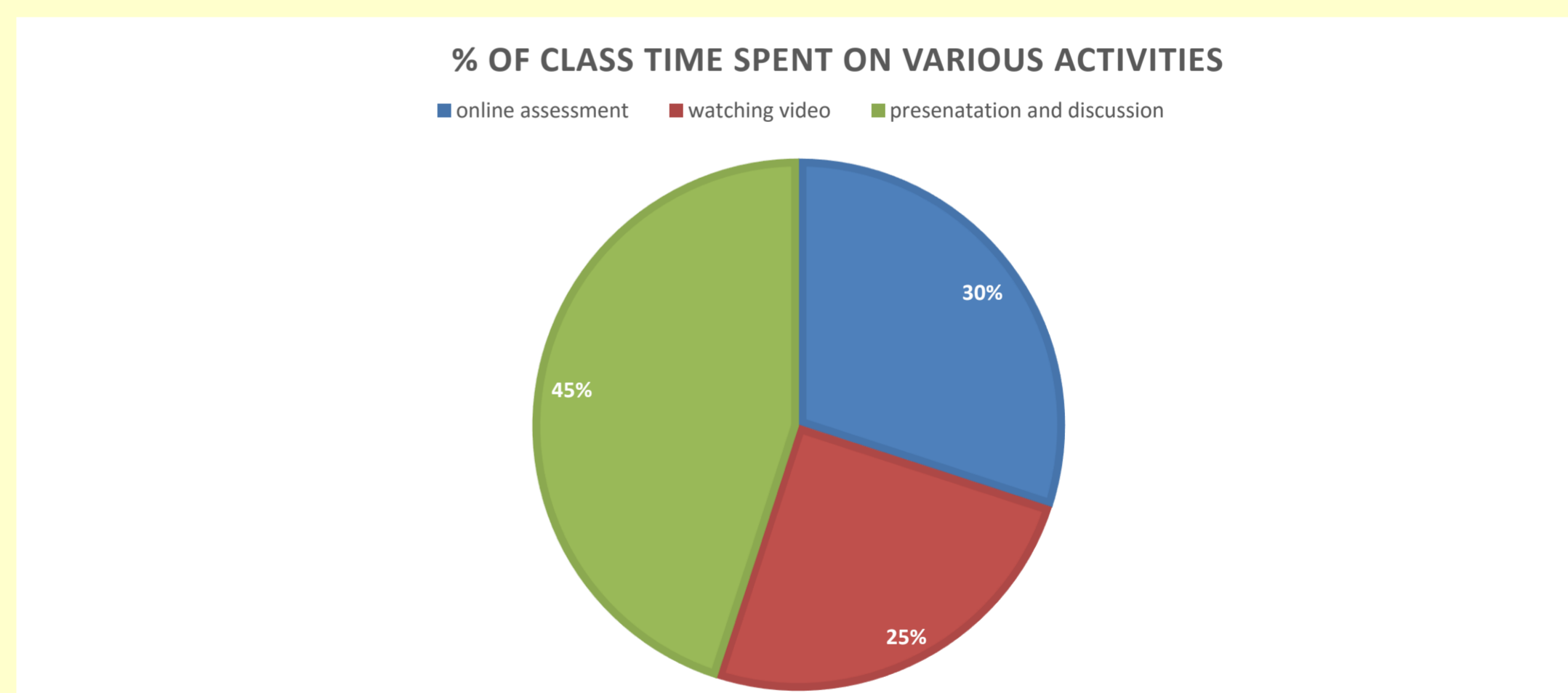
How Lecture Time is Allocated

Figure 5: How lecture time is devoted to each of the activities.

Key Aims and Objectives of the Project

- To determine if this teaching and learning approach is a success or failure.
- To measure/evaluate student satisfaction with the concept.
- To attain greater student engagement by encouraging students to work and study outside of class contact hours.
- To illustrate that a blended and flipped approach is a viable alternative to the traditional lecture approach for students.
- To explore the use of VLE analytics (Cisco and Moodle) to support delivery of the module.

Results and Conclusions

As this project is just beginning, no results and conclusions are currently available. The project will run over the next academic year. Evaluation will be measured by means of a student survey and analysis of the Cisco and Moodle analytics.

References:
• Cisco. (2016, February 15). Networking Academy Home. Retrieved from Cisco Networking Academy: https://www.netacad.com/
• Etherton, E. (2016, March 16). Eli The Computer Guy Free Computer Training and Advice. Retrieved from Eli The Computer Guy: https://www.youtube.com/user/elithecomputerguy
• Messer, J. (2016, March 16). Professor Messer IT Certification Training Courses. Retrieved from Professor Messer: http://www.professormesser.com/