EECS Instructional Computing - Review and Plans
Fall 2018 / Spring 2019

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Current Initiatives

1) The 3-year agreement between EECS and Data Sciences for use of the 105 Cory lab expires in June 2019. It specifies that the parties should discuss potential continuation of the arrangement. EECS may need the additional lab space as classes expand. EECS151 may be displaced from 125 Cory by an expanding EE16A/B. The department has also been asked to host a hardware lab for the new VR class, CS294-137.

2) The campus cardkey system is aging out, and many components (software, controllers and readers) may need to be replaced in the next year. The UCPD is able to process batch data entry for us, which is the only way we can manage access for our 10,000+ students. However, they are constrained by lack of staff and are unable to keep pace with the demand. I worry that this is converging on a crisis for us.

3) We have merged the Microsoft software download sites for our EECS Premium "STEM" subscription with the campus Standard subscription. Now, EECS-affiliated students can login though the campus portal (http://software.berkeley.edu) and, with a single Calnet sign on, see both the Standard and Premium products. Previously, we created independent accounts for them to access the Premium products. We are grateful to the Berkeley IST IT staff and the support staff at Kivuto, who modified their servers to allow this to work.

4) We are planning a major renovation of our computer lab in 200 Sutarja Dai Hall in June 2019. The lab is a highly visible glass-enclosed space that is shared by a diverse set of programming classes and a student-led animation class (CS10, CS61BL, CS184, UCBUGG). We recently installed new audio-visual displays ($13K).

   Thanks to a generous donation, we will be able to replace the 10-year old workstations and to provide a seating arrangement that is suitable for the new style of group and collaborative learning. The renovation will include new high-end workstations, new tables and chairs, improved lighting, whiteboards, cable control, and security devices.

5) We are planning a major upgrade to our virtual server platform. We run physical servers with hypervisors that host virtual machines or containers. These are used by the teaching staff of EECS courses to run autograders, office hours schedulers and other course-related applications. Our 2 DELL R710 servers (c. 2014) are limited by their network speed, disk storage and disk capacity.

Thanks again to a generous donation, we can add faster networking, disks, and a UPS to these servers so they can host applications for more courses as well as for student projects. We plan to provide pre-configured virtual machines for students in specific courses. The virtualization servers we run include Microsoft Hyper-V, Linux libvirt and Jupyterhub.

Recent Achievements

1) installed wireless video (AirTame) for projectors in Soda labs
2) obtained license donation from Applied Wave Research for EE142
3) hosted the ACM regional programming contest in Soda labs, Nov 3 2018 (4th year)
4) replaced 24 MacPros in 200 Sutarja Dai Hall with Linux PCs from other labs, for use by CS10 and the UCBUGG amination class
5) installed 2 VR programming stations in 105 Cory for use by CS294-137 in the evenings, when their lab in the Blum Center is not available

Funding Needs

Here are some needed improvements for which we lack funding:

1) 7 LCD displays ($28K @ $4K each) mounted outside of instructional labs to give students current status reports, and to replace obsolete signage on cork boards. Costs are for materials and installation.
2) Whiteboards ($5K) and computers ($40K) for 200 Sutardja Dai Hall. The lab is shared by a diverse set of programming classes. While we have a generous donation to renovate that computer lab, furniture and cabling are costing more than expected, so we may be short of our end goal.
3) New furniture ($12K) and a printer ($3K) for the CS Self Paced Center (200A Sutardja Dai Hall), to match the new furniture and design in the adjacent 200 SDH.

Strategic Goals

Emphasize the support of services that directly affect the instructors and students. Consider virtualization of servers, enable student-owned computers. As instructors develop new ways to use external "baseline" services for communications and grading, we want to support and document it, and share that with other instructors.

Mission Statement

The EECS Instructional Support Group (ISG) installs and maintains networked computers that are used by EECS classes. ISG provides computer accounts for instructors and students in the Instructional labs and on Instructional servers. ISG purchases, installs and maintains application software needed for classes. ISG supports instructional labs in Cory Hall, Soda Hall and Sutardja-Dai Hall.

ISG wishes to anticipate and meet the computing needs of instructors and students in EECS courses and to provide support for new and innovative learning environments. We wish to be accessible and responsive to requests for service. We also wish to learn about new and interesting technologies that may be of value in this service.

Organizational Scope

The major, ongoing responsibilities of ISG are to manage:

- computer accounts for 13800+ students in 100+ classes each semester on the EECS instructional computers; cardkey access to the labs
- systems administration of Windows, Linux and MacOSX operating systems and application software, including licensing and security
- servers for email, WEB, SVN, LDAP, Netshow, autograding
- 180 desktop computers in 7 CS labs (Soda Hall, Sutardja Dai Hall)
- 150 desktop computers in 8 EE labs (Cory Hall)
- 32 Centos compute servers, mainly for CAD tools (Icluster*, Hpse*)
- 8 Windows compute servers, mainly for EE classes (Wserver*)
- 12 Ubuntu compute servers, mainly for CS classes (Ashby, etc)
- dynamic allocation of additional servers as needed for classes
- customized software support for instructors and student projects
- physical condition of 10 computer labs

These are functions in which ISG interacts with other UCB support groups:

- we use EECS department services (IDSG) for Active Directory, disk space, network access and security scans
- we synchronize our user accounts with the EECS department (IDSG)
- we obtain enrollments from the Registrar (Student Information Services)
- we obtain cardkey numbers from the CAL1 office
- we submit cardkey authorization to our labs in batch uploads to UCPD
- we bill students' voluntary printer charges to CARS
- we manage the computers in engineering labs with ESG
- we manage the licenses for Synopsys/TCAD/HSPICE with the Device Group
- we manage the licenses for Cadence with the BSAC group
- we manage the licenses for Maya and Renderman with the BCAM group

Notable Events

See http://inst.eecs.berkeley.edu/notices.html for current events.

For additional reports, please see https://inst.eecs.berkeley.edu/reports
For additional information, please contact me:

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