System Administration for Beginners/Intermediate

Final Thoughts

May 7, 2008

1 Introduction

The past twelve weeks we have gone from a basic Linux install to a fully-operating (and hopefully secure) web server, complete with your own customizations. The design portion of the project has hopefully allowed you to explore and get a feel for something you were interested in that wasn't necessarily covered in class, and the documentation that was written illustrates the importance of keeping track of what was done and why. It can serve as a friendly reminder for yourself sometime down the line, or for the next system administrator who will be managing the server.

As we close the semester, we hope to leave you with a few closing thoughts. By completing the beginning or intermediate section of this course, we've laid out the foundation and basics for system administration. Because of time limitations, we aren't able to cover in detail as much as we'd like. However, we are confident that you've acquired the skills necessary for handling any new and unknown situations that you may come across as a sysadmin. When in doubt, remember your three key resources:

1. RTFM
2. Google/Wikipedia
3. Your fellow sysadmins

(If you're not sure about #1, look it up using #2)

2 Opportunities

For the aspiring system administrator, there are many opportunities and outlets to learn in more detail many other topics that weren't covered. The Intermediate and Advanced sections will be offered next semester; if you found the course material to be exciting and something you're interested in, we recommend you

take a look at next semester's offerings. Because of the unique situation this semester of having beginning and intermediate sections around the same time, you might want to take a look at taking Advanced due to some overlap between the two.

For those who might not have the time to continue on with the series or would like to explore other venues, there is no dearth of courses or extracurricular activities out there that allow you to put your skills to use. Here are some of the few out there (by no means an inclusive list):

2.1 Clubs, Organizations, Departments

Almost every club or organization on campus now has a presence online. At the same time, a good number of organizations maintain their own computers and servers. For those starting out, this is a good way to learn how to manage systems in a live environment on a small scale (for the most part).

Open Computing Facility The student-run and student-led computer lab is maintained by an all-volunteer staff. This DeCal is offered by OCF staff members and makes extensive use of the services that OCF provides. Joining staff is a good way to gain sysadmin experience; many of our alumni have gone off to work at many of the major tech companies and startups.

Residential Computing/RSSP IT Residential computing provides support for network connections and tech support for computers throughout the university's residence halls and academic centers. There are many different paid opportunities here, including consulting, desktop administration, system administration, and network security.

Campus Departments There are several IT departments on campus that look to the student body for help with IT. Some of the many departments out there include: *EECS IT*, *Boalt School of Law*, *ASUC Auxillary*, *Statistical Computing Facility (SCF)*, *Campus IS&T (CNS, SNS)*.

2.2 Courses

Throughout the course, we've touched rather briefly on a wide variety of subjects. In general, a good system administrator has practical knowledge of many of the topics under the Computer Science (CS), sometimes Mathematics and Information Systems departments. For example, we've covered the basics and design choices for the UNIX operating system, a bit of script programming (shell scripting, PHP), databases (MySQL), networking, and security (access control, encryption).

If a particular aspect of system administration appeals to you, you might be interested in further learning in great detail about that topic. A lot of the

courses will focus a bit more on development and theory, as opposed to complete practical information for system administrators, but nonetheless provide an excellent background for a system administrator.

The following is a brief list of undergraduate and graduate courses that are offered here at Berkeley that may interest you (*the full course list and descriptions can be found at* `eecs.berkeley.edu`):

Note that many of these classes have some prerequisites.

- Databases
  - CS186: Introduction to Databases
  - CS286: Implementation of Databases
- Operating Systems:
  - CS162: Operating Systems and Systems Programming
  - CS262A/B: Advanced Topics in Computer Systems
- Networking:
  - EE122: Introduction to Communication Networks
  - CS268: Computer Networks
  - CS294-28: Network Security
- Security:
  - CS161: Computer Security
  - CS262: Security in Computer Systems
  - Math 116/194: Cryptography
  - CS276: Cryptography
- Software Engineering/Programming:
  - CS3/9 series: Introduction to various programming languages
  - CS160: User Interfaces
  - CS164: Programming Languages and Compilers
  - CS169: Software Engineering

3 Closing Thoughts

We hope that you found the course fufilling and rewarding, even if you choose not go continue into system administration. You'll find that having some UNIX experience might open doors in different career pathways or helpful in today's age of computing. If you are so inclined, you may even want to teach this class in the future semesters!

Regardless, we all had a great time teaching this course and wish everyone the best of luck in whatever you choose to do. Feel free to send us facilitators an email about anything (even for UNIX help); we'd love to hear thoughts about this course or if it affected you in any way.

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