CS 591 – Linux System Administration – Summer 2015

Final Project

A quarter of the grade for CS 591 students will be based on the final project. The final project requires that students select a significant piece of software for Linux systems, and:

1. Research the software to figure out: what it does, how to best install it, and how to configure it so that it is stable and secure.
2. Install and configure the software, either on a machine in the CS Dept. Hands-on Lab or on a personal laptop running Linux.
3. Demonstrate the successful installation and configuration of the software to the instructor.
4. Write up a report on the software, which will be made available to the class via the course website.

The final project has several goals:

• Giving students hands-on experience installing and configuring a significant piece of software under Linux, including researching setup and security issues, and possibly debugging problems that are encountered.
• Exposing the class to software that we do not have time for the instructor to cover in detail, and providing guidance for those students wishing to install such software.
• Giving students experience writing technical documents.

A separate list of possible project topics will be made available. The majority of topics involve server software, which we do not have time to cover in the class. Should any students have an interest in (or experience with) a significant piece of Linux software that is not listed, they are welcome to discuss it with the instructor to see if it is acceptable for their project.

Project topics will be assigned on a first-come basis, by emailing the instructor with your choice request. You are encouraged to list first and second choices in your email, in case multiple students are interested in the same software. You will get a reply telling you what your project is—or requesting more choices if all your choices are already assigned.

Most of the software choices will be available in packages for whatever distribution(s) you are using. However, while installing distro packages might be a first step in getting familiar with the software, students will generally be expected to figure out how to install the software from source code (that they get from on the relevant project’s website). The instructor will let you know if this is not the case for a particular project (e.g., because the code is part of the kernel or just too complicated to build).

It is important to understand that you are playing the role of a system admin here, installing a piece of software needed by a user. Doing background research is often going to be critical to your success. The instructor is open to trying to help, but is not familiar with every project’s requirements, so may not be able to be terribly helpful. Remember also that you are supposed to be getting hands-on admin experience, and admins must often spend time researching and then experimenting!

The standard formats for source code downloads as well as standard procedures for building software from source will be discussed in class. Students should use the latest version of software unless there is a good reason not to do so. Note that the latest source version may be newer than what the distribution has available. The procedure used for doing an install from source needs to be documented in the final paper. A key issue for
installing software systems is *dependencies*: other software/libraries that are required for the software to compile and/or function. The package-based distribution software installers will generally take care of dependencies for you, but with a source-based install, *you* will have to make certain everything that is required is installed. You are not expected to do source-based installs of all dependencies; you may use distribution packages. However, if the latest version of the software is newer than what the distribution includes, it may require newer versions of library and other software than what the distro has. The other thing to remember is that source compilation will generally require header files from the dependencies, and these are often in a separate package from the software itself (a “devel” package). Thus, if you have XXX software package installed but your configuration or compilation steps are still failing due to XXX problems, you need to find and install something like the XXX-devel package.

Students need to demo their installed and configured project software to the instructor during the final week of the semester. You will be able to sign up for times to do the demos. Students who are demoing server software, will need to be able to demo use of a client on a separate machine along with the server! If you do not have two machines available, at least one of the demo machines must be a Hands-On Lab machine.

The final paper must be able to stand on its own for other students to read. It should give an overview of what the software does and document exactly the installation and configuration procedure you used to build the software and get it working properly. Be sure to address security considerations for your software. Ideally, other students should be able to make use of your paper to ease their own installation of the software in the future. There is no fixed page length for the paper, as appropriate length will depend on the software, the use of figures, and so forth.

Your final paper must be submitted to the instructor via email to complete CS 591. You must submit a PDF version of your paper (and slides if desired)—no other format will be accepted! The final papers must be submitted by Saturday August 8 at the latest! An email reply that your PDF paper has been successfully received will be sent to you.