System Administration for Beginners

Week 5 Homework

March 16, 2009

1 Introduction

This homework will deal with packages installation and basic configuration. Everyone should know how to install and configure Apache using the two different methods we covered in class. That will not be the only thing to install your server, however. Unless your are working on a server that will be dedicated to only one task, it is most likely that you will have to install other packages, daemons, and other utilities to make your life as a system administrator easier, or life for users harder.

2 Submission Instructions

Please turn in your homework at the beginning of class, with the assignment title, your name, `inst` login, and the answers (if multiple choice, just the letter is fine). Additionally, read the submission instructions under each subsection.

NOTE Some of the URLs have been shortened to the form `http://something.ocf` for brevity; simply add on `.berkeley.edu` to the end if you aren't on campus.

3 Homework

3.1 Ganglia

Ganglia is a "a scalable distributed monitoring system for high-performance computing systems such as clusters . . . " Although we do not exactly have state of the art cluster technology, all virtual servers are located on one main server.

Your task is to install the package Ganglia, located at `http://ganglia.sourceforge.net` and add your system to the monitoring website. The configuration file for Ganglia that you will want to use is located here:

`http://www.ocf/sysadmin-class/2009-fall/beginning/gmond.conf`

To check whether or not you have completed this section, you can visit the Ganglia monitoring system by going to `http://decal.ocf:34280/ganglia`. Click on the “Beginning” cluster; if you see your project server name (in the form of bXX, where XX is your group number), then you’ve completed this section.

NOTE During the install process, Ganglia will ask if you would like to build it with **gmetad**. It is not necessary to compile Ganglia with **gmetad** for this assignment.

HINT You may find that, like in your lab, you will not be able to complete the configure process due to missing files, tools, or libraries. Most of the time, you will need to install the development package relating to the missing file because we are compiling packages from source. These development libraries contain the header and source files referenced by the package you are trying to compile.

For example, if the configure process says `libapr` is missing, install `libapr-dev`. Use `apt-cache search` to figure out the correct package name to install. Follow the same steps to install missing packages reported by the compilation process.

3.1.1 Submission Instructions

It is not necessary to submit anything for this section of the homework. You can verify that you have completed it successfully by going to the Ganglia monitoring website on `decal.ocf`. This is how we will be checking off this section of the lab.

3.2 sudo

In lecture, we discussed the concepts of regular users, root users, and superusers. By default, Debian does not come with the `sudo` package, but does come with the **APT** system that was discussed in detail this week. Remember that working as the root user is sometimes hazardous if you are unsure of what you are doing.

Install the the `sudo` package using the APT system and add an entry to the `sudoers` file that grants everyone on the `wheel` group full `sudo` access. Then add everyone to the group `wheel`. You can test this out by running `sudo -l` as a normal user.

NOTE There is a specific command you need to run to edit the `sudoers` file. Try reading the `man` page for `sudo` for more information.

3.2.1 Submission Instructions

Describe the process that you took to install `sudo`, add users to the group `wheel`, and how you gave full `sudo` access to the group `wheel`. Then, answer these questions:

1. What is the command syntax for sudo? That is, if I wanted to run a certain command that required root privileges and I only had sudo access, how would I do it?

2. How can I pull up a root shell using sudo? Essentially this would be the same as me running as root user, even though I do not have the root password.

3. I want to allow the user nubsysadmin, a beginning system administrator, access to a program requiresrootprivs that requires root privileges. What is the exact line in the sudoers file that I would input?

4. Let's try an actual example of the previous question. Using resources available, what is a command or program located on your server that you may want to restrict to specific users (you can install this program if it's not available on your server)? Add a new user to your system and give them sudo access to this program. Log in as the user you created and try starting (or stopping, if applicable) the program using sudo.

5. I don't remember where I placed the sudoers file. What command can I use to edit the sudo privileges of another user? Do I need to be a root user or can I use sudo to do this?

6. sudo commands are logged in a file for accountability. Where is this file located, and what does each entry in the log contain? What could someone with sudo privileges do to try and prevent their actions from appearing in this log file? Can you think of any way to prevent this?

7. What are the drawbacks to using sudo? Is it a fail-safe method to restricting access to programs? If I give full sudo access to a user, is that essentially giving root privileges to them?