Essential Skills: Assignment Operating systems 2016-2017

Objectives of the assignments

This assignment will help you to learn to use tools available on various Linux distributions to perform administration task. For each of the following task identify the most popular linux common tools, explain their usage and try them on your desktop system. In general there is more than one way to accomplish each of the follow task try at least to find two alternatives (one solution required the alternative option is optional)

1. Basic

Find a way to get the name of the host? Find a way to change the time zone manually? Specify hostnames for an IP address once on the local machine, and then have multiple applications connect to external resources via their hostnames?

2. Network Diagnostics:

Test the connection between the local machine and a remote address or machine? Provide a report on the path that the packets take to get from the local machine to the remote machine? Get information about the route that Internet traffic takes between the local system and a remote host? Track the speed of the connection in real time?

3. System Diagnostics:

Find out how much memory your system is using at a given moment? Collect information about memory; swap utilization, IO wait, and system activity? How to get real-time view of the current state of your system?

4. File System Management:

Find out a secure way to upload and download files from a remote server? How can you provide users and applications access to specific files and directories without reorganizing your folders? How to Know What Packages are Installed on Your System? How to Discover Package Names and Information?

Debug the Execution of a Program in Linux: Strace is quite simply a tool that traces the execution of system calls. In its simplest form it can trace the execution of a binary from start to end, and output a line of text with the name of the system call, the arguments and the return value for every system call over the lifetime of the process. By default, strace displays all system calls for the given executable.

Learn strace basic usage: what is the strace option, which allows you to display only specific system calls? How can you use strace to trace multiple systems calls? How can you use strace to trace a running linux process? How can you display the timestamp for each strace output line? strace provides useful statistical report for the execution trace.

Using strace Find out:

- Which config files a program reads on startup
- Where a given Linux process spends most of its execution time? You can try a number of command like “ls”
- Why a given process cannot connect to remote servers?