Booting & Shutting Down

Goals

- Understand the computer boot process and tools needed to manage the start up and stop down system services
- **Keep record of all the steps followed to solve these practices**

Part 1: System boot and shutdown

1. Make sure that there is at least one initial SnapShot to begin this section. It's very important!!

2. Init process

    a. Modify the system configuration for booting with LILO boot loader. To do it, you have to un-install the GRUB boot loader and install LILO boot loader. After that, you will have to configure it properly (post-installation).

    b. Try to boot the system as "single user" from LILO control console. Now, repeat this proof without the "sulogin" argument of "single user" boot mode, from the `/etc/inittab` file. Notice what happens next.

    c. Rename the kernel file (**vmlinux-3.2.0-4-xx**) to `my_vmlinuz` and reboot the virtual machine. What happens?, and why?. Restore the original name for the kernel.

    d. Uninstall the LILO boot loader. The lost of boot loader is a typical situation when the system managers configure the system boot.
    (for example, after installing Windows system)
    Now, try to rescue the LILO boot loader using the Debian CD installation (iso):

        1. Follow the rescue process and execute the rescue shell.
        2. Rescue (re-install) the LILO boot loader.
        3. Reboot the virtual machine

    e. Reinstall the GRUB boot loader again and set it as default.

    f. Rename (again) the kernel file (**vmlinux-3.2.0-4-xx**) to `my_vmlinuz` and reboot the virtual machine. What happens?, and why?

    g. Solve the problems and boot the system as "single user"

3. Services management
    a. Check out to the started services. Disable the *rc.local* service
    b. Install the ssh server (if your system has not ssh available), start it manually (restart if it is already running) and check out the service operation (monitor the service daemon and make sure that it is running).
    c. Configure the ssh service "run level" to start automatically only in level 2.
    d. Modify the system configuration for booting in "run level" 5 (check if ssh service is not running).
    e. Disable "CTRL+ALT+SUP" in the system core to have no effect.
4. Boot system security
    a. Everyone have to change the "root" user password. Keep it in secret.
    b. Try to login to the virtual machine of your classmate (not knowing the password). Play with the GRUB boot loader console.
    a. Solve the security problems found and boot the system as "root"
5. Restoring the initial state of the virtual machine using the previous snapshot.

Part 2: Shell scripting

1. Modify the rc.local service behavior:
    a. Make sure that the rc.local service is enabled (to start up) for the 2, 3, 4 and 6 run levels.
    b. Now, modify this service to exec the next tasks:
        1. Prints in standard output (console) the virtual machine hostname, the running kernel version, the current run level and a list of the services which have been started on boot.
        2. After that, shuts down the virtual machine.
2. Create a shell script that takes tree parameters; name of one service, run level and operation ("on" to enable the service in the run-level and "off" to disable it). With these data, the script will be able to enable or disable the service on the run-level passed as argument.