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HW2: OS_6233_HW1_Linux_Kernel

1. What are kernel APIs? What is the difference between kernel APIs and system calls?

Kernel APIs are interfaces for user-space applications. It can invoke user-space applications and manipulate the output.

System call can permit user-space application to invoke methods in the kernel.

2. What are roles of files in /boot/ (vmlinuz-*, initrd.img-*, grub, config*)?

vmlinuz-*: is a compressed Linux kernel. It is the first thing that is loaded into memory.

initrd.img-*: is a temporary root file system. It is mounted during system boot to support the two-state boot process. It also contains various executables and drivers which permit the root file system to be mounted successfully.

grub: is one of the boot loaders. It is used to fire up the kernel when start the system.

config*: is the configuration file of the kernel. In this file, we have the option to choose which functionality, module or driver to add into the kernel. So that we can get a minimum size and useful linux system. In the homework step 6, we streamline_config.pl to generate a minimum .config file to make the compilation process faster.

3. Include the screenshots AND all modified files from tasks 1, 2 and 3 below.

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References:

Kernel APIs, Part 1: Invoking user-space applications from the kernel
http://www.ibm.com/developerworks/linux/library/l-user-space-apps/index.html?ca=drs

vmlinuz Definition
http://www.linfo.org/vmlinuz.html

Linux initial RAM disk (initrd) overview
https://www.ibm.com/developerworks/library/l-initrd/

Configuring the Bootloader
http://www.gentoo.org/doc/en/handbook/handbook-x86.xml?part=1&chap=10

Linux From Scratch
http://www.linuxfromscratch.org/lfs/view/development/chapter08/kernel.html

Github:

https://github.com/qiaoshun8888/OS_6233_HW1_Linux_Kernel