Week #4 – Boot Process

Overview of the week's objectives

A Linux administrator frequently encounters computer systems that have boot and initialization related problems. Savvy technicians will need to be familiar with the basic boot and initialization process in order to efficiently diagnose and repair these problems.

This week, you will explore various topics related to the Linux boot process including basic fault isolation principles and repair techniques. It is important for you to understand these concepts so that you will become familiar with the inner workings of system initialization and be well-equipped to diagnose, troubleshoot, and fix related problems.

TODO List

Please refer to all previous "Week's Overview PDFs" for details / advice relating to, or concerning, each of the tasks detailed in the remainder of this overview. While we focus on instructions specific to this week's material herein, previous instructions still apply.

Learning Activity			**Time in hours**		**Points**
			Expected	**Spent**	
Reading Assignments	O2L5	Studying Guides & Videos	2		
Practice Assignments	O2L5-PQ	Taking Practice Quizzes	1		
	W4-PA	Working on PAs & Participating to PA forums	5		
Graded Assignments	W4-GQ	Taking Graded Quiz	1		2
	W4-DF1	Participating to Discussion forums	3		1
			12		**3**

Task #1 – Study & Practice

Refer to "Week #2's Overview PDF" and/or all previous "Week's Overview PDFs" for detailed instructions on how to use online module guides, practice quizzes *and our* support forum *while working on this task.*

Task #2 – Practice Assignments

Refer to "Week #2's Overview PDF" and/or all previous "Week's Overview PDFs" for detailed instructions applying to all Practice Assignments.

Question #1

Which one of the following is the correct order of loading the four phases of a PC-based Linux system boot process?

1. BIOS, boot loader, kernel, Upstart (init)
2. Kernel, BIOS, boot loader, Upstart (init)
3. BIOS, Upstart (init), boot loader, kernel
4. Boot loader, BIOS, Upstart (init), kernel

Question #2

Name the current Linux boot loader. Name both the acronym and the meaning of the acronym. Name the legacy Linux boot loader, which is still used in some cases today. Name both its acronym and the meaning of the acronym. Be sure to identify which is the current, and which is the legacy, Linux boot loader.

Question #3

What is the most likely function of the following line in a GRUB script:

chainloader +1

1. To load GRUB.
2. To load a Window OS
3. To load a Linux Kernel
4. To load syslin

Question #4

Research each line of the GRUB commands below and explain what each line does during the boot process. Be prepared to create your own Grub boot script for loading a Linux

distro.
default=0
timeout=10
splashimage=(hd0,0)/grub/splash.xpm.gz
title Fedora Core (2.6.8-1.521)
root (hd0,0)
kernel /vmlinuz-2.6.8-1.521 ro root=LABEL=/
initrd /initrd-2.6.8-1.521.img
title Windows 2000
rootnoverify (hd0,1)
chainloader +1

Question #5

List the "init" run levels and briefly identify each level's function, use, or purpose in one to ten words for each level.

Question #6

What is the default run level for Linux?

Question #7

What does the "telinit" command do?

What would happen if the root user typed and entered the following command?

telinit 6

Question #8

What is the /etc/inittab file and what information is contain within the /etc/inittab file?

Question #9

What directory are the "run control" files located in, and list any two of the known run control files?

Question #10

What information is contained within a "run control" file, and what meaning do the letters "S" and "K" represent?

Question #11

What is contained within the /etc/init.d directory?

Question #12

Explain what is being performed by the execution of these two lines below.

 # ln -s /etc/init.d/cups /etc/rc2.d/S80cups
 # ln -s /etc/init.d/cups /etc/rc0.d/K80cups

Task #3 – Discussion Forums

Refer to "Week #2's Overview PDF" and/or all previous "Week's Overview PDFs" for detailed instructions applying to all discussion forums assignments.

Topic #1 – W4DF1 – Grub vs. Lilo

Using the Internet, research and compare the Lilo and Grub boot loaders. The scope of the comparison is left wide on purpose so that you may find something to compare which differs from other students posting on the forum. If not, your post should supplement the information they provided. Examples include internal structure, configuration files syntax…

Task #4 – Graded quizzes

Refer to "Week #2's Overview PDF" and/or all previous "Week's Overview PDFs" for detailed instructions applying to all graded quizzes.