Project 1 Write Up

Group 22

October 13, 2014

Our Solution

For this project, we started by grepping through the Linux kernel source code that was given to us for Project1 for the keywords RR and FIFO. When the results came back, we realized that we were missing these schedulers. After researching, we discovered that RR and FIFO are included in the Linux kernel sched.c and sched_rt.c by default. So we did a Google search and downloaded the stock Linux 3.0.4 kernel. We then ran a *diff* on those two files and found that they were missing cruicial scheduling functions. Knowing we had to make a patch file, we set the output of *diff* command to create a patch file. Since there were two files being patched, we had to use *combinediff* to merge the two patch files into one.

After we created the patch file, we ran the Linux command *patch* with the patch file and it added the missing functions to the given Linux source code. To verify that our solution was correct, we compiled the code with the commands:

```
make mrproper
make menuconfig
make dep
make clean
make bzImage
make modules
make modules_install
cp arch/i386/boot/bzImage /boot/
cp System.map /boot/
mkinitrd /boot/proj1 3.0.4
```

When the compiling finished, we had to edit the Grub Bootloader to allow us the choice of what kernel to use at boot time. After a few attempts, our system booted. To verify that we were using our custom kernel, we ran the command *uname -r* which told us that we were indeed running our custom kernel. In addition, we also found some commands from Googling that allows us to set set specific commands to run with certain policies. By using *sudo chrt-f -p 20 ls*, the command is ran with FIFO and priority 20. Likewise *sudo chrt -r -p 20 ls* would be ran for RR and priority 20.

Work Log

commit c6b83d78503058ff866f0c12e95f91705c0fc65b
Author: bob <bob@CS444.(none)>
Date: Mon Oct 13 23:34:00 2014 -0700

    Added Sam's final writeup and tarball.

commit 20efd7c2f63a1a34f1477399ca4ac8457582414f
Author: bob <bob@CS444.(none)>
Date: Mon Oct 13 23:22:35 2014 -0700

    Added final version of Lawrences writeup

commit a93a0dee664e6be62a3d5ab5fb05f2f80a25e820
Author: bob <bob@CS444.(none)>
Date: Mon Oct 13 22:36:45 2014 -0700

    Added Sams write up and make file to the quinnsa directory.

commit cb8126f7ac41237c8ec0ef49151e9b3205945489
Author: bob <bob@CS444.(none)>
Date: Mon Oct 13 17:09:00 2014 -0700

    Modified the makefile

commit 23bedbee7b8d7a57358336e34bbf3af6871dae69
Author: bob <bob@CS444.(none)>
Date: Mon Oct 13 15:26:12 2014 -0700

    Added all of the commands neccisary to compile and install the linux kernel from source for prohect

commit 2a152343ac582e2fea7c26ac9fddfa8544247b21
Author: bob <bob@CS444.(none)>
Date: Mon Oct 13 11:09:54 2014 -0700

    Added the Hw1 directory for the final submission stuff.

commit 26e563d9371892d574e2c0dd92a132353de644e8
Author: bob <bob@CS444.(none)>
Date: Sun Oct 12 18:12:03 2014 -0700

    Added the RR and FIFO patches to sched.c and sched_rt.c files.

commit c42686d7c21e3dca09eed5cee34787711584a60e
Author: Sam Quinn <quinnsa@os-class.engr.oregonstate.edu>
Date: Thu Oct 9 21:37:46 2014 -0700

    Added Project #1

commit fafec4e296472a9b417503cfbd7cc51c70b213ac
Author: Sam Quinn <quinnsam1@gmail.com>
Date: Thu Oct 9 21:16:07 2014 -0700

Initial commit